University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course

1. Type of Action
   - A. Addition
   - B. Deletion
   - C. Modification:
     - in credits
     - in title
     - in number or alpha
     - in prerequisites or co-requisites
     - Other

2. New Alpha, Number and Title
   MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry

3. Credits
   3 credits

4. Old Alpha, Number and Title
   MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry

5. Credits
   4 credits

6. New Catalog Description
   Study of the elements of trigonometry and analytic geometry including trigonometric functions and their inverses, relations, graphs, and applications; conic sections; vector applications; cartesian and polar coordinate systems; parametric equations and applications; and related topics.

7. Select box and type specific information in text box.
   - Prerequisites
   - Corequisites or Recommended Preparation
   - "C" or better in MATH 135 or equivalent, satisfactory math placement test score, or consent of instructor.

8. Student Contact Hours Per Week
   - Lecture
   - Lab
   Other

9. Proposed Date of First Offering
   Semester Fall Year 2008

10. This course is (check one and click in appropriate textbox and provide details):
   - Already articulated with All other UH institutions as FS or equivalent.
   - Appropriate for Articulation with
   - Not yet appropriate for Articulation.

11. This course Makes No Difference in the number of credits required for the program/core.

12. Equivalent or similar courses offered in the UH System:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Alpha, Number, Title</th>
<th>Campus</th>
<th>Alpha, Number, Title</th>
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<td>HawaiiCC</td>
<td>MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry (3 Credits)</td>
<td>MauiCC</td>
<td>MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry (3 Credits)</td>
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<td>HonoluluCC</td>
<td>MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry (3 Credits)</td>
<td>UH Hilo</td>
<td>MATH 140 - Pre-Calculus: Elementary Functions, Trigonometry and Analytic Geometry (4 Credits)</td>
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<td>KapiolaniCC</td>
<td>MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry (3 Credits)</td>
<td>UH Hilo</td>
<td>MATH 104G - Pre-Calculus: Trigonometry and Analytic Geometry (3 Credits)</td>
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<td>MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry (3 Credits)</td>
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<td>MATH 140 - Pre-Calculus: Elementary Functions, Trigonometry and Analytic Geometry (3 Credits)</td>
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<td>MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry (3 Credits)</td>
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13. This course is (check one and click in appropriate textbox and provide details):
   - Already articulated with All other UH institutions as FS or equivalent.
   - Provide details of existing or desired articulation (date, college(s), purposes, pre-major, etc.) in this space:

14. Reason for Initiating, Modifying or Deleting Courses or Other Pertinent Comment:

   The math department is streamlining Math 140. The topics of sequences, series, math induction and the binomial theorem will be deleted from the required course coverage. Sequences and series will be used in Math 206, Calculus II. Students will have to learn these topics having only a brief review. Math induction and binomial theorem will have to be learned in other courses as they need it. This will allow the course to be streamlined to 3 credits.

CCCM #6100 (Amended for WCC use October 2002)
## Levels of Review of Course Proposal at Windward Community College

Course Alpha, Number, and Title: MATH 140 - Pre-Calculus: Trigonometry and Analytic Geometry

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2. Department

<table>
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<th>Dates</th>
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Was this course discussed in a department meeting? ☑ Yes ☐ No

3. Division

<table>
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<tr>
<th>Margaret Coteley</th>
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4. Curriculum Committee Review

☑ Approved

☐ Disapproved

Reason:

<table>
<thead>
<tr>
<th>Joan Shibusue</th>
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<tr>
<td>Curriculum Committee Chairperson</td>
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March 11, 2008
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Course Modification Form – Go to next page for Articulation Form

WCC Form for Course Modifications

Course MATH 140 Pre-Calculus: Trigonometry and Analytic Geometry
Submitted by Young-A Choi and Jean Okumura
Date February 26, 2008

1. What change is proposed in the course? Provide specific information comparing both the “new” and “old” course.
   
The Math Department is proposing to change in Math 140 from a 4 credit course to a 3 credit course. Sequences, series, math Induction, and the binomial theorem will be deleted.

2. What is the rationale for the change?
   
The math department is streamlining Math 140. The topics of sequences, series, math induction and the binomial theorem will be deleted from the required course coverage. Sequences and series will be used in Math 206, Calculus II. Students will have to learn these topics having only a brief review. Math induction and binomial theorem will have to be learned in other courses as they need it. This will allow the course to be streamlined to 3 credits.

3. Is the change substantive enough to require a change in course identification? If so, explain thoroughly.
   
No.

4. Is the course articulated with any 4-year program? Yes
   
If yes, give details of the agreement(s) and explain any impact the proposed modifications may have on articulation.

   It satisfies Foundation Symbolic and there will be no impact on articulation in the UH system. This course is equivalent to Math 104G at UH Hilo and Math 140 at other UH institutions.

5. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial considerations that would be required to implement this course modification. What has been done to provide for these additional costs? Who will teach the course? Is additional preparation needed?
   
No change in staff, equipment nor facilities will be needed.

6. Will this course modification result in any alterations in the number of hours required to attain a certificate or degree? No
   
If yes, provide details and justification for these alterations.

7. If the course is renumbered to 100 or above, does it meet the criteria for transfer level courses? (Go to next page for transfer course criteria.) *
<table>
<thead>
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<td></td>
<td>3/11/08</td>
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<tr>
<td>Curricular Committee Chairperson</td>
<td></td>
<td>3/11/08</td>
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<tr>
<td>Faculty Senate Chairperson</td>
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<tr>
<td>Dean of Instruction</td>
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CCCM #6100 (Amended for WCC use October 2002)
Windward Community College Mission Statement

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

Catalog Description

Study of the elements of trigonometry and analytic geometry including trigonometric functions and their inverses; relations, graphs, and applications; conic sections; vector applications; cartesian and polar coordinate systems; parametric equations and applications; and related topics.

Activities Required at Scheduled Times Other Than Class Times

Activities may include completion of library sections, conferences, TLC lab work, or any activity that the student must complete outside of regularly scheduled class time.

STUDENT LEARNING OUTCOMES

1. Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form and in the presentation of evidence.

2. Traverse the bridge from theory to practice by applying concepts and properties of trigonometry, vectors, and complex numbers to solve problems.

3. Analyze and graph trigonometric functions, inverse trigonometric functions, conics, polar equations, and parametric equations.

4. Apply formal rules or algorithms by demonstrating proficiency in performing operations with trigonometric expressions and equations.

5. Use appropriate symbolic techniques to analyze and solve application problems requiring the use of trigonometry and analytical geometry and in the critical evaluation of evidence.

6. Understand the concept of proof as a chain of inferences by demonstrating proficiency at proving trigonometric identities and other types of proofs.
1. Students will be exposed to the beauty, power, clarity and precision of formal systems.

2. Instructors will help students understand the concept of proof as a chain of inferences.

3. Instructors will teach students how to apply formal rules or algorithms.

4. Students will be required to use appropriate symbolic techniques in the context of problem solving, and in the presentation and critical evaluation of evidence.

5. The course will not focus solely on computational skills.

6. Instructors will build a bridge from theory to practice and show students how to traverse this bridge.

Course Tasks

This section refers to the tasks or the work the student must complete or what the student must do in order to succeed in this class. Grading of tasks can be included here. In this case, the next section (Assessment Tasks and Grades) is unnecessary.

Assessment Tasks and Grading

To be filled in by instructor. There may be policies which affect the method of grading for this class. Please see the “Windward Community College Math Department Policies” handout for a description of these policies.

Learning Resources and Materials

Precalculus: Mathematics for Calculus, 5th ed., by Stuart, Redline and Watson

Additional Information (to be filled in by instructor)

- Instructor expectations
- Sample grading rubrics or scoring sheets
- Additional policies
- Expectations
- Any information you feel the student needs to know