This checklist enables A2C2 representatives to endorse that their departments have accurately followed the Process for Accomplishing Curricular Change. For each course or program proposal submitted to A2C2, this checklist must be completed, signed by the submitting department's A2C2 representative, and included with the proposal when forwarded for approval. Peer review of proposals is also strongly advised, e.g., departments should discuss and vote on the proposals as submitted to A2C2, rather than on just the ideas proposed or drafts of proposals.

If a proposal fails to follow or complete any aspect of the process, the Course and Program Proposal Subcommittee will postpone consideration of the proposal and return it to the department's A2C2 representative for completion and resubmission. Resubmitted proposals have the same status as newly submitted proposals.

Note: This form need not be completed for notifications.

1. The appropriate forms and the “Approval Form” have been completed in full for this proposal. All necessary or relevant descriptions, rationales, and notifications have been provided.
   _______ Completed

2a. The “Financial and Staffing Data Sheet” has been completed and is enclosed in this proposal, if applicable.
   _______ Completed _______ NA

2b. For departments that have claimed that “existing staff” would be teaching the course proposed, an explanation has been enclosed in this proposal as to how existing staff will do this, e.g., what enrollment limits can be accommodated by existing staff. If no such explanation is enclosed, the department's representative is prepared to address A2C2's questions on this matter.
   _______ Completed _______ NA

3. Arrangements have been made so that a department representative knowledgeable of this proposal will be attending both the Course and Program Proposal Subcommittee meeting and the full A2C2 meeting at which this proposal is considered.
   _______ Completed
   Name and office phone number of proposal's representative: ____________________ ____________________

4. Reasonable attempts have been made to notify and reach agreements with all university units affected by this proposal. Units still opposing a proposal must submit their objections in writing before or during the Course and Program Proposal Subcommittee meeting at which this proposal is considered.
   _______ Completed _______ NA

5. The course name and number is listed for each prerequisite involved in this proposal.
   _______ Completed _______ NA

6. In this proposal for a new or revised program (major, minor, concentration, etc.), the list of prerequisites provided includes all the prerequisites of any proposed prerequisites. All such prerequisites of prerequisites are included in the total credit hour calculations. _______ Completed _______ NA

7. In this proposal for a new or revised program, the following information for each required or elective course is provided:
   a. The course name and number.
   b. A brief course description.
   c. A brief statement explaining why the program should include the course.
   _______ Completed _______ NA

8. This course or program revision proposal:
   a. Clearly identifies each proposed change.
   b. Displays the current requirements next to the proposed new requirements, for clear, easy comparison.
   _______ Completed _______ NA

9. This course proposal provides publication dates for all works listed as course textbooks or references using a standard form of citation. Accessibility of the cited publications for use in this proposed course has been confirmed.
   _______ Completed _______ NA

Department's A2C2 Representative or Alternate ___________ Date ___________

[Revised 9-05]
# WINONA STATE UNIVERSITY
## NEW AND REVISED COURSE AND PROGRAM APPROVAL FORM

Routing form for new and revised courses and programs.  
Course or Program  **MATH 271**

<table>
<thead>
<tr>
<th><strong>Department Recommendation</strong></th>
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<tr>
<td>Department Chair</td>
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<tr>
<th><strong>Dean’s Recommendation</strong></th>
<th>Yes</th>
<th>No*</th>
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<tbody>
<tr>
<td>Dean of College</td>
<td>Date</td>
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*The dean shall forward their recommendation to the chair of the department, the chair of A2C2, and the Vice President for Academic Affairs.

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<thead>
<tr>
<th><strong>A2C2 Recommendation</strong></th>
<th>Approved</th>
<th>Disapproved</th>
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<tr>
<td>Chair of A2C2</td>
<td>Date</td>
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<tr>
<th><strong>Graduate Council Recommendation</strong></th>
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<tr>
<td>(if applicable)</td>
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<tr>
<td>Chair of Graduate Council</td>
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<td>Director of Graduate Studies</td>
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<tr>
<th><strong>Faculty Senate Recommendation</strong></th>
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<tr>
<td>Approved</td>
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<tr>
<td>President of Faculty Senate</td>
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<tr>
<th><strong>Academic Vice President Recommendation</strong></th>
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<tr>
<td>Approved</td>
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<tr>
<td>Academic Vice President</td>
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<tr>
<th><strong>Decision of President</strong></th>
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<tbody>
<tr>
<td>Approved</td>
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<tr>
<td>President</td>
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</table>

Please forward to Registrar.

Registrar | Date entered  
Please notify department chair via e-mail that curricular change has been recorded.
WINONA STATE UNIVERSITY
PROPOSAL FOR NEW COURSES

Department __Mathematics and Statistics_________________ Date __2/5/2011____________

Refer to Regulation 3-4, Policy for Changing the Curriculum, for complete information on submitting proposals for curricular changes.

MATH 271 Linear Algebra for Differential Equations 1 S.H.
Course No. Course Title Credits

This proposal is for a(n) __X__ Undergraduate Course ____ Graduate Course

Applies to: ___ X ___ Major ______ Minor ______ University Studies* ___ Not for USP

__X__ Required ___ Required ___ Elective ___ Elective

Prerequisites __ Concurrent Enrollment in MATH 270_

Grading method __X__ Grade only ______ P/NC only ______ Grade and P/NC Option

Frequency of offering ______ Each semester

*For University Studies Program course approval, the form Proposal for University Studies Courses must also be completed and submitted according to the instructions on that form.

Provide the following information: (SEE ATTACHED)

A. Course Description
1. Catalog description.
2. Course outline of the major topics and subtopics (minimum of two-level outline).
3.a. Instructional delivery methods utilized: (Please check all that apply).
   Lecture: Auditorium ITV Online Web Enhanced Web Supplemented
   Lecture: Classroom Service Learning Travel Study Laboratory Internship/Practicum
   Other: (Please indicate)

3.b. MnSCU Course media codes: (Please check all that apply).
2. CD Rom 5. Broadcast TV 8. ITV Receiving

4. Course requirements (papers, lab work, projects, etc.) and means of evaluation.
5. Course materials (textbook(s), articles, etc.).
6. Assessment of Outcomes
7. List of references.

B. Rationale
1. Statement of the major focus and objectives of the course.
2. Specify how this new course contributes to the departmental curriculum.
3. Indicate any course(s) which may be dropped if this course is approved.

C. Impact of this Course on other Departments, Programs, Majors, or Minors
1. Does this course increase or decrease the total credits required by a major or minor of any other department? If so, which department(s)?
2. Attach letter(s) of understanding from impacted department(s).
Definitions:

01 - Satellite:

02 - CD Rom:

03 - Internet: Predominately = where all, or nearly all, course activity occurs in an online environment. One to two activities may occur face-to-face in a classroom, with the maximum being two activities.

04 – ITV Sending: a course in which students are in the classroom with the instructor, other students join via interactive television technology from other geographically separate locations

05 – Broadcast TV:

06 – Independent Study: a course in which the teacher develops specialized curriculum for the student(s) based on department guidelines in the University course catalog

07 – Taped: a course in which the teacher records the lessons the lessons for playback at a later date

08 – ITV Receiving: a course in which students are not in the classroom with the teacher, other students join via interactive television technology from other geographically separate locations

09 – Web Enhanced- Limited Seat Time: For a course in which students are geographically separate from the teacher and other students for a majority of required activities. However, some on-site attendance is required. The course includes synchronous and/or asynchronous instruction.

10 – Web Supplemented- No Reduced Seat Time: For a course utilizing the web for instructional activities. Use of this code may assist your college/university in tracking courses for “smart classrooms” and/or facility usage.

Attach a Financial and Staffing Data Sheet.

Attach an Approval Form with appropriate signatures.

Department Contact Person for this Proposal:

Barry A. Peratt
Name (please print) 457-5567 bperatt@winona.edu
Phone e-mail address

[Revised 9-1-10]
Include a Financial and Staffing Data Sheet with any proposal for a new course, new program, or revised program.

Please answer the following questions completely. Provide supporting data.

1. Would this course or program be taught with existing staff or with new or additional staff? If this course would be taught by adjunct faculty, include a rationale.
   
   *This course would be taught by existing faculty.*

2. What impact would approval of this course/program have on current course offerings? Please discuss number of sections of current offerings, dropping of courses, etc.
   
   *As described in the proposal, this new MATH 270 (1 S.H.) course, along with the proposed new offering MATH 270 (3 S.H.), would replace in content and faculty load our current MATH 270 (4 S.H.) course.*

3. What effect would approval of this course/program have on the department supplies? Include data to support expenditures for staffing, equipment, supplies, instructional resources, etc.
   
   *The demand for these resources would not change.*
A. Catalog Description

271 – Linear Algebra for Differential Equations (1 S.H.) Methods of linear algebra are studied as they apply to the solutions of differential equations. Topics include systems of linear equations and eigenvalue analysis. Prerequisite: Concurrent enrollment in instructor's section of MATH 270 or instructor’s permission.

See attached course outline for the remainder of the information.

B. Rationale for Creation of MATH 445

The major focus of the course will be the Linear Algebra component of the current MATH 270 course. The current course MATH 270 Differential Equations and Linear Algebra was originally created when the university switched from the quarter model to the semester model. The course was a compromise: 1) Differential Equations is a requirement for Engineering and Physics majors and for the Engineering program's accreditation and 2) Every major in Mathematics and/or Statistics must take some Linear Algebra before completing their undergraduate degree. Mathematics and Statistics majors are already taking at least one 3-credit course, either MATH 130 (Matrix Algebra) or MATH 340 (Advanced Linear Algebra), that more than covers the Linear Algebra component in MATH 270.

The proposed creation of MATH 271 is due to the proposal that the Linear Algebra component be taken out of MATH 270 resulting in the reduction of MATH 270 from 4 credits to 3 credits. The proposed reduction of credits for MATH 270 is tied with the proposed changes in the BA Major in Mathematics and the creation of the BS Major in Mathematics both of which will require the proposed MATH 270 for degree completion.

If the proposed credit reduction of MATH 270 from 4 to 3 credits is approved, Engineering and Physics majors will have to take a 1-credit course in Linear Algebra to satisfy be successful in MATH 270 and complete their core requirements. MATH 271 is designed to fill in this 1-credit deficit and is a prime reason for its proposed creation.

The Mathematics and Statistics Department has consulted the Department of Engineering regarding this proposed change, and the new joint offering of MATH 270 and 271 will create no increase or decrease in the number of credits required for their majors.

C. The Impact of This Course on Other Departments, Programs, Majors and Minors

As describe in Part B, there will be no impact on other departments, programs, majors, or minors.

D. The Impact of This Course Change on the University Studies Program

There will be no impact in this regard.
TO: A2C2
Fr: Beckry Abdel-Magid

RE: Math 270 and Math 271

Date: February 7, 2011

Dear Members of A2C2 Committee,

As discussed in my meeting with representatives from the Department of Mathematics and Statistics, the proposed changes will not affect the curriculum of the composite materials engineering program as long as a companion course is offered with the proposed MATH 270 Differential Equations to cover Linear Algebra. Linear Algebra is a required subject for our students, and will be covered in a one-credit companion course MATH 271 Linear Algebra for Differential Equations offered the Department of Mathematics. My understanding is that MATH 271 will be offered concurrently with MATH 270 to avoid any scheduling complications for CME students.

Thank you,

Beckry Abdel-Magid, Ph.D., P.E.
Professor and Chair
Department of Composite Materials Engineering
Winona State University
Winona, MN 55987
507-457-5658
http://www.winona.edu/Engineering

MILLER BROTHERS
School of Engineering
Winona State University • Winona, Minnesota • 55987-5838 • Tel: (507) 457-5685 • TTY: (507) 457-2525

Named in Honor of B.A. Miller and R.W. Miller, Pioneers in the Composite Materials Industry
Course Title: Linear Algebra for Differential Equations

Current Catalog Description:  
271 – Linear Algebra for Differential Equations (1 S.H.) Methods of linear algebra are studied as they apply to the solutions of differential equations. Topics include systems of linear equations and eigenvalue analysis. Prerequisite: Concurrent enrollment in instructor’s section of MATH 270 or instructor's permission.

Number of Credits: 1


Topics Covered:

• Solving simultaneous linear equations.
• The inverse of a matrix and reduced row-echelon form
• Vector spaces, linear independence, spanning, bases.
• Linear Transformations
• Eigenvalues and Jordan-Canonical Form

Listing of Sections to be Covered: Not applicable to this course, since there is no standard textbook. Chosen sections of any text should correspond to the topics outlined above.

Remarks: None.

Method of Instruction: Lecture-presentation, discussion, question-answer sessions, use of calculators/computers, group work.

Evaluation Procedure: Homework, quizzes, midterm exams, and a final exam.

Last Revised: February 2011 by the Mathematics Subgroup