This course proposal form should be completed when introducing a new course or a revision of an existing course. The proposal will be reviewed by the Committee on Curriculum, or, in the case of minor revisions, will be approved administratively by the Associate Provost for Instruction.

**This Course Proposal must be completed according to the guidelines provided in Course Proposal Form – Instructions and Guidance. Please see the last page of Course Proposal Form – Instructions and Guidance, for instructions on how this Course Proposal should be submitted to the Committee on Curriculum for review.**

**Date:** November 13, 2017

1. **Course Information:**

1.1 Course Prefix and Number: RMS335

   Course Title: Transport Properties of Materials

   (If a *new* or *renumbered* course, please check with the Registrar regarding the use or reuse of the course number)

1.2 ☑ This is a New Course.

   OR

   ☐ This is a Major Course Revision

   OR

   ☐ This is a Minor Course Revision

   If this is a Course Revision, please see Course Proposal Form – Instructions and Guidance to determine if your revision is major or minor. Indicate below the reason(s) for the revision.

   (Please check all that apply)

   ☐ Course Number/Division
   ☐ Learning Outcomes
   ☐ Institutional Resources

   ☐ Title
   ☐ Concepts, Content
   ☐ Semester Offered

   ☐ Credit hours
   ☐ Catalog Description
   ☐ Course Inactivation

   ☐ Pre- or Co-requisite(s)
   ☐ Instructional Methods
   ☐ Course Reactivation

   ☐ Format
   ☐ General Education

1.3 General Education knowledge and skills area (if applicable): If none, check here ☑

   ☐ American History
   ☐ Humanities
   ☐ Other World Civilizations

   ☐ The Arts
   ☐ Mathematics
   ☐ Social Sciences

   ☐ Basic Communication
   ☐ Natural Sciences
   ☐ Western Civilization
2. **Proposer Need Statement:**

2.1 Describe why this course (or course revision) is needed to meet current or proposed goals and outcomes of the program or College, and, if a revision, provide an explanation of and justification for the revision. Junior-level course in the new Renewable Materials Science program

2.2 List the pre-requisite or co-requisite courses (taught within the home department or taught by another department) and explain their relationship to the proposed course. RMS 387, RMS 388, PSE 370

2.3 Explain the impact of this course in meeting the goals and outcomes of other Departments/programs (if any). NA

2.4 If the proposed course is designed to fulfill SUNY General Education Requirements, the Associate Provost for Instruction must review this proposal to ensure that General Education Requirements will be met for the specified knowledge area (See Instructions and Guidance). Please provide an explanation of how this course fulfills SUNY General Education Requirements. NA

2.5 What are the staffing requirements (instructor, TA, Lab tech, etc.) for this course? If a new course, are there new staffing needs or are there adequate staff members already in place? If a revised course, are there additional staffing needs? Current faculty, GA

2.6 What Department (or extra-Department) resources are or will be made available to support the course or course revision? ASTM/TAPPI room (171 Baker)

2.7 Anticipated Enrollment (enter where applicable)

<table>
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<th>Semester</th>
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<td>Fall Semester:</td>
<td>Spring Semester: 25</td>
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<td>Summer Semester:</td>
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2.8 Anticipated frequency of class meetings. Two lectures/one lab per week
3. DETAILED COURSE DESCRIPTION

3.1 COURSE IDENTIFICATION AND FORMAT:

3.1.1 Course Prefix and Number: RMS 335
3.1.2 Course Name: Transport Properties of Materials
3.1.3 Credit Hours: 3
3.1.4 Semester (check all that apply): Fall ☐ Spring ☒ Summer ☐
3.1.5 Format (check as appropriate): Lecture ☒ Online ☐ Lab ☒ Field ☐ Other ☐ (explain)
3.1.6 Contact hours per week: Two hours lecture, 3 hours lab
3.1.7 Prerequisite(s) – if none, please enter “None” (Be specific, as Upper Division courses and Graduate courses will likely have some pre-requisite knowledge) RMS 387, RMS 388, PSE 370

3.2 SCOPE:

3.2.1 Level of Instruction (check one, or two if a shared resource course):
   - Lower Division ☐
   - Upper Division ☒
   - Beginning Graduate ☐
   - Advanced Graduate ☐

3.2.2 Relation to curriculum or to other ESF or Syracuse University courses:
   a. Is this a required course? No ☐ Yes ☒.
      If Yes, please list the program(s) for which it is a requirement: RMS
   b. Is this an elective course within your department? No ☒ Yes ☐.
   c. Is enrollment in this course restricted? No ☒ Yes ☐.
      If Yes, please explain:
   d. Are other ESF or SU courses similar or identical to this course? No ☒ Yes ☐.
      If Yes, please identify the courses:
   e. Is this course a shared resource offering (i.e. is there a graduate or undergraduate concurrent offering)? No ☒ Yes ☐.
      If Yes, what is the course number of the concurrent offering?

3.3 STUDENT LEARNING OUTCOMES:

Identify the student learning outcomes associated with this course.
After completing this course, students will be able to:
   - Explain the science involved in seasoning and preserving wood products
   - Explain the science involved in drying paper
   - Explain the science involved in movement of water through wood and paper

3.4 MAJOR CONCEPTS, PROCESSES or TOOLS:

Identify the course content and themes (e.g. Table of Contents) consistent with the learning domains and outcomes.
   - Conduction of heat through wood and paper
   - Movement of fluids through wood and paper by mass transfer and diffusion
   - Porous media transport
   - Discussion of specific industrial examples.
3.5 **INSTRUCTIONAL METHODS:**

Identify the methods used to meet the course outcomes, as well as the principal instructional methods. Lectures and laboratory demonstrations and exercises appropriate to course content.

3.6 **CATALOG DESCRIPTION**

Provide the course description using the precise format to be included in the ESF catalog (i.e. course number and title; format; brief description; semester(s) offered; and pre-/co-requisites). Please do not exceed 1000 characters.

RMS 335 - Transport Properties of Materials (3)

Two lectures/one laboratory per week. Transport phenomena applied to wood and paper. Discussions and demonstrations of the movement of gases and liquids through wood (seasoning and preservation) and paper (drying) and transport of fibers in suspension (pulp slurries). Topics include conduction, convective heat and mass transfer, diffusion in both steady-state and transient situations. Discussion of specific industrial examples. Spring.

3.7 **COURSE HISTORY:**

Provide the dates of prior approval of this course, and its revision history. New course 2018

3.7.1 **Relationship to current ESF courses**

This course is replacing a current ESF course  ☐ YES ☒ NO

If NO, then proceed to section 4 below.

If YES, then provide below the number and name of the course to be deactivated and removed from the catalog once this course proposal has been approved:

Course Number (of the course to be replaced)
Course Name (of the course to be replaced)

If the course to be replaced is used by departments **other than the department sponsoring this proposal**, please indicate below which departments are affected and the date they were notified about the course replacement.

Department: Date of Notification:
Department: Date of Notification:
Department: Date of Notification:
Department: Date of Notification:
**4. Institutional Impacts:**

This section pertains to forecasting institutional resource needs to support the course or course revision. Provide clear statements regarding the needs and current availability (or absence) of resources. Note that, if this is a course revision, only the impacts of the revision should be included.

**Staffing needs:**
Instructor, GA

**Classroom resources (e.g. physical facilities in a laboratory, lecture hall, flexible space, academic computing):**
Lecture room and ASTM/TAPPI room (171 Baker)

**Technology Resources:**
Existing facilities

**Computing Resources (software licensing, hardware, access):**
Existing resources

**Library Resources (subscriptions, services):**
Existing resources

**Transportation Requirements (budget, fees, fleet vehicles):**
NA

**Forest Properties or Field Practicum Facilities:**
NA
5. Health and Safety Considerations:

Will any of the conditions or situations outlined below be present in association with the course?  Yes / No

5.1. Will substances with any of the following properties be used during instruction: flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury? ☐ / ☑

5.2. Will any physical hazards be present during instruction? (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.). ☑ / ☐

5.3. Will any biological hazards be present during instruction? (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.). ☐ / ☑

5.4. Will any radiation hazards be present during instruction? (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.). ☐ / ☑

5.5. Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction? (Give considerable thought to electrical use outdoors, or any potentially wet location.). ☐ / ☑

5.6. Will there be any personal safety issues related to the class? (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.). ☐ / ☑

5.7. Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise? ☑ / ☐

5.8. Will any type of personal protective equipment be necessary during class exercises? (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.) ☑ / ☐

If the answer was “Yes” to any of the HEALTH AND SAFETY questions, please explain: 5.2 and 5.8: laboratory exercises will involve measuring heat and water flow/diffusion through wood and paper; appropriate lab safety considerations will be followed.

For lab and field courses to which all answers are “no”, you should explain that here, also. Normally, we would expect some safety precautions for such courses.
6. Coordination and Consultation

Emails/letters, as noted below and attached to this proposal, or signatures below, indicate that the affected departments, programs or units have been notified of this proposal and have had an opportunity to assess the impact of the proposal on their respective units.

**Affected Academic Department(s) or Program(s) – other than the sponsoring department:**

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<th>Name of Chair/Program Director</th>
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*If more than three Departments/Programs, please continue on a separate page*

**Other Units:**

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<th>Associate Provost for Instruction &amp; Dean of the Graduate School (for Gen Ed courses only)</th>
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7. Proposer Information and Sponsoring Department Chair Affirmation:

Contact Person:

Name: Robert Meyer _______________________________ Department: Paper and Bioprocess Engineering _______________________________

Email: rwmeyer@esf.edu __________________________________________ Phone: X6838 ______________________________

This proposal has been reviewed and approved by the sponsoring Department. Affected departments have been notified and given the opportunity to provide feedback. Department resources are or will be made available to support the course, or a plan is in place to meet the resource needs as identified in the Institutional Impacts section of this proposal (see Section 4, above).

Name: _______________________________ Date: ________
Department Chair (or designated curriculum representative)

Signature: _______________________________ Or letter attached ☐
Department Chair (or designated curriculum representative)

8. Approvals:

_____________________________ Date
Curriculum Committee

_____________________________ Date
Faculty Governance

_____________________________ Date
Provost