1. Rationale for Change

Please provide an explanatory narrative outlining the rationale for the change, and the impacts of this change on the learning outcomes of the curriculum:

1. Changes have been made in the flow of courses to line up with changes introduced in the Bioprocess Engineering Program
   a. PSE361 to be offered in Sophomore Fall (moved from Sophomore Spring)
   b. PSE371 to be offered as a required course in Sophomore Spring (moved from Junior Fall)
   c. BPE335 to be offered as a required course in Junior Fall (moved from Junior Spring)
   d. PSE477 to be offered as a required course in Junior Spring (moved from Senior Fall)
2. Remove BPE430 Unit Operations Lab as a required course (Senior Fall, 3) and add BPE330 Unit Operations Lab as a required course (Senior Fall, 3)
3. Two courses PSE 468 Papermaking Processes I (Senior Fall, 3) and PSE478 Papermaking Processes II (Senior Spring, 2) are suggested as a required two-course sequence to replace the current PSE 468 Papermaking Processes, which is a six-credit course in the Paper Engineering program. The revision of the old course into two courses allows greater flexibility in scheduling of course activities as well as easing conflicts caused by the current extensive laboratory time in the spring semester. In addition, having the course over the full year also allows for greater interaction amongst courses, especially with Fiber and Paper Properties (PSE 465) and Principles of Mass and Energy Balances (PSE 370).
4. Remove FCH 360 Physical Chemistry from the PE Curriculum to avoid repetition of material which is covered in other required courses, such as PSE 361 Engineering Thermodynamics and PSE 467 Wet End Chemistry
5. GNE 330 Professional Engineering Skills (required six 0.5 credit sequence) is removed from the curriculum. The most important content will be covered in other courses, such as PSE 132 and PSE 133. The change addresses student concerns about the course as expressed in different surveys.
6. PSE304 Summer Mill Experience (2-credit course, Summer between Junior and Senior year), which is a part of the current Curriculum, is proposed to be replaced by PSE304 Professional Internship (1-credit course, Summer between Junior and Senior year) or PSE305 Professional Co-op (a semester of full-time employment approved by the Department), to be followed by PSE306 Professional Synthesis (1-credit course, Senior Fall) for writing the report of the Professional Internship or Professional Co-op. This change is proposed to provide a time to synthesize the mill experience in an academic setting after actual industrial experience has been completed.

7. Three-credit PSE 465 Fiber and Paper Properties (Junior Fall, 3) course is proposed to change to four-credit course to reflect actual student-instructor contact time, lecture discussion time (actual time is three hours of lecture-discussion per week while in catalog description of this course it appears as two hours of lecture-discussion time per week). Added credit is obtained from current PSE468 (six credits) which is proposed to be changed into two courses PSE468 and PSE 478 for total of five credits. The PSE465 and PSE468 will collaborate closely in papermaking and paper testing involving students in Junior Fall and Senior Fall semesters, respectively.

8. Move PSE 481 Engineering Design from Senior Fall to Senior Spring semester to partially balance course load.

9. Additional two elective courses are added for total of 15 elective credits to allow students to supplement their education with courses of their own choice. These two electives replace the deleted FCH 360 and GNE 330.

2. Institutional Impact:

Changes from existing condition:

Anticipated Enrollment or Enrollment Change: to increase

Faculty or Staffing Requirements: No change

Technology, Computing Resources, and Classroom Resource Demands: No change

Change in Accreditation Requirements: None

Changes to Assessment Plan: No

Library Resource Requirements: No change

3. Catalog Narrative:

Please attach to this proposal form a copy of the current catalog description in MS Word format, with revisions shown in “track changes”. 
The paper engineering program is a chemical engineering-based curriculum designed to provide greater depth in fiber and paper processing for students preparing for an engineering career in the pulp, paper and allied industries. The pulp and paper industry is at the forefront of the renewable resources industry. It represents the first industry that uses biomass in large quantities to produce commodity and specialized products. Graduates are well prepared to move into assignments in the engineering field and advance quickly to positions of responsibility in the analysis and design of processes and equipment. The paper engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.
4. Curriculum Transition Plan:

Please provide a narrative description of your plan for transitioning from your existing curriculum to the proposed new curriculum. Please provide specific dates for implementing curriculum changes, overlap periods where old and new curricula may exist simultaneously, and final phase out of old curricula. Please also include impacts and mitigating considerations for transfer students and students in mid-program during implementation, impacts of changes in semester delivery of existing courses, addition of new courses within a particular semester, etc.

Starting in the Fall of 2020, students joining our Paper Engineering program will follow this newly proposed Curriculum while our current students will follow our current Curriculum. Courses which have been proposed to change in sequence will be offered in semesters as needed.

5. Approval Signatures:

Signatures below, or attached letters, 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. If departments did not respond to your notification, you may wish to document your effort to contact them.

### Affected Academic Department(s) or Program(s):

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**[If more/less than three Departments/Programs, please add/delete lines as appropriate.]**

### Other Units

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|                  | Date                 |
Office of the Provost

Signature below, or attached letter, indicates that the Provost either a) agrees that there is no need for additional resources from the College; or b) indicates willingness to provide the extra support to the department.

__________________________________________  Or letter attached □

Provost Signature  Date
6. Proposer Information and Department Chair Affirmation:

Contact Person:

Name: Biljana Bujanovic  
Department: PBE

Email: bbujanovic@esf.edu  
Phone: X6907

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 this curriculum revision, or a plan is in place to meet the resource needs as identified in the Institutional Impacts section of this proposal (see Section 2, above).

Name: Bandaru V. Ramarao
Department Chair (or designated curriculum representative)
Date: __________
Signature: ________________________________  Or letter attached □
Department Chair (or designated curriculum representative)
7. Final Approvals:

__________________________________________________________  ____________ ______
Curriculum Committee        Date

__________________________________________________________  ____________ ______
Faculty Governance            Date

__________________________________________________________  ____________ ______
Provost                        Date