

Application for a New Course v10

Course ID <i>Subject and Number</i>	ENGR 334
Date APPROVED	
Date DENIED	

I. Systems and Catalog Information Complete each item.

1	Course Developer	Rich Jinkerson
2	Course Teacher	A member of the Engineering & Physics Department faculty
3	Course Title	Heat and Mass Transfer
4	Course Abbreviation (if title is over 30 characters)	Heat and Mass Transfer
5	College	College of Arts and Sciences
6	Department	Engineering and Physics
7	Number of Credit Hours	3
8	Is the course Fixed Credit or Variable Credit?	Fixed
9	Is the course repeatable?	No
10	Maximum number of times course may be repeated	Zero
11	Maximum number of hours credit	3
12	Explanation for variable credit	N/A
13a	Course contact hours - LEC	3
13b	Course contact hours - Lab	0
13c	Course contact hours - Practicum	0
13d	Course contact hours - Seminar	0
13e	Course contact hours - Studio	0
13f	Course contact hours - Online	0
13g	Course contact hours - Colloquium	0
13h	Course contact hours – Field Experience	0
13j	Course contact hours - Internship	0
13k	Course contact hours - Research	0
13m	Course contact hours - Workshop	0
13n	Course contact hours – Other (specify)	0
14	Instructor Workload	3
15	Grade Mode (check all appropriate):	☒ Standard ☐ Credit/No Credit (undergrad only)
16	Maximum Enrollment	20
17	Catalog Description (50 words or less)	A study of the rates of heat and mass transfer using the fundamental mechanisms of conduction, convection and radiation.
18	List any prerequisites (course/s, test scores, class standing, major, etc.)	ENGR 381 Thermodynamics; MATH 361 Ordinary Differential Equations

19	List any co-requisites	ENGR 333 Fluid Mechanics
20	If the course is cross listed, specify the Course ID(s). MUST have signature in Section V off all Department Chairs	No
21	Does this course have any special student costs? Yes/No <i>Attach a completed "Request to Add or Change Course Fees" form. Describe in section IV-F.</i>	No
22	How often will it be offered? Spring	Offered
23a	How often will it be offered? Fall	Not offered
23b	How often will it be offered? Spring	Offered
23c	How often will it be offered? Summer	Not offered
24	Frequency?	Every Year
25	First semester this course will be offered <i>New courses may not be taught under their approved course ID until they appear in the catalog, therefore, no earlier than the coming fall.</i>	Spring 2016
6	List course/s that should be deleted, include the last semester for course/s being deleted <i>A course cannot be deleted when it is a requirement in a degree plan in any department.</i>	None
27	Is this course required for a degree/s? Yes/No <i>If "Yes," attach a revised degree plan(s) reflecting the placement of the new course.</i>	No. This course is a designated elective that is part of the program leading to a general engineering degree. It is a recommended elective course for engineering students with interest in mechanical engineering, but it is not required.
28	Has this course been offered as a Special Topics course? Yes/No <i>If "Yes," specify the Course ID and enrollment for each term it was taught.</i>	Yes. ENGR 340.03– Spring 2015, Total Enrollment 8
29	List any courses in which content overlaps the proposed course. (Course ID and Name) <i>Attach statement from instructor/dept chair of existing course justifying the new offering in Section IV-D.</i>	None

II. Curriculum

1	Degree Plan Explanation of how this course affects degree requirements.	This course is a designated elective that is part of the program leading to a general engineering degree. It is a recommended elective course for engineering students with interest in mechanical engineering, but it is not required.
2	Justification State the justification for adding this course to the current curriculum. Represent the need	This course enhances the professional preparation for engineering students who have a specific interest in mechanical engineering

III. Course Design

1. Audience and Course Goal

1	Describe the intended audience, including prerequisite skills.	This course is a designated elective that is part of the program leading to a general engineering degree. Prerequisite skills require completion of ENGR 381 and MATH 361. ENGR 333 is a Corequisite requirement.
2	State the overarching course goal(s) in performance terms.	1) Students will calculate rates of heat transfer with conduction, convection and radiation. 2) Students will apply analytical and numerical methods to model and solve heat conduction problems in multiple coordinate systems. 3) Students will develop an understanding of forced and natural convection in engineering systems. 4) Students will analyze and select heat exchangers using standard methods. 5) Students will solve general problems involving both heat and mass transfer.

2. Competencies and Measurements

	Competency	Measurement
1	Calculate rates of heat transfer with conduction, convection and radiation.	Homework; Exam 1
2	Apply analytical and numerical methods to model and solve heat conduction problems in multiple coordinate systems.	Homework; Exam 2
3	Develop an understanding of forced and natural convection in engineering systems.	Homework; Exam 3
4	Analyze and select heat exchangers using standard methods.	Homework; Exam 3
5	Solve general problems involving both heat and mass transfer.	Homework; Exam 4

3. Text and Resources

1. Give the full publication information of the textbook/s and other required resources and outside readings.

Required Text: *Heat and Mass Transfer Fundamentals and Applications*, 5th Edition, Y. Cengel and A. Ghajar, McGraw-Hill, 2015.

Software: *Connect* by McGraw-Hill; software access is provided with the text.

2. For **combined undergraduate/graduate** courses, make two lists:
 - a. full publication information; label **Undergraduate**.
 - b. full publication information; label **Graduate**. Indicate number of pages required.

IV. Supporting Documentation

Supporting documents must accompany proposal prior to preliminary approval by chair and dean.

1	Library — Submit new course application and syllabus to the Director of the Library. Consult with the director and establish a deadline for completion of the library report. Attach the signed copy of the library director's report.
2	Instructional Design — The application and syllabus must be reviewed by the Adams Center. Attach a copy of the Adams Center Review Letter.
3	Degree Plan — The impact of the course must be reviewed by the Director of Curriculum. Attach degree plan signed by the Director of Curriculum.
4	Content Overlap — Include one document for each course you listed in Section I-I. Attach statement from instructor/dept chair of existing course justifying the new offering.
5	Departmental Resources — List the resources that support the course and are available only through the department, if applicable. Attach the list of the holdings and the location/s.
6	Resources — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). Attach a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
7	Expenses — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). Attach a complete list of all items, the estimated cost of each and the source of the funds.
8	Justification — Attach all documents referred to in Section II-2
9	Syllabus — Attach the syllabus for the course based upon the anticipated first-semester offering.
10	Provide documentation for all additional attachments here

V. Preliminary Approvals

All supporting documentation has been assembled and attached to this application. I believe this course is ready to be presented to appropriate councils. We have a plan to fund this new course.

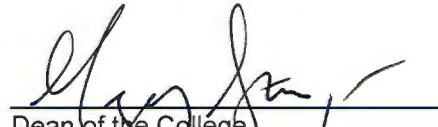
ENGR 334, Heat and Mass Transfer

Primary Department



Department Chair

4/21/2015
Date



Dean of the College

4/23/15
Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair

Date

Dean of the College

Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair

Date

Dean of the College

Date

VI. Approvals *Place all approvals on one page.*

A. Course ID: ENGR 334

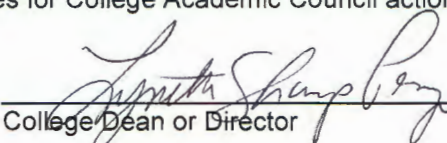
Course Title: Heat and Mass Transfer

1. College Academic Council Action: (for all courses)

Note: Insert additional lines for College Academic Council action for each college involved in cross-listed courses.

Approved ☒

Denied ☐


College Dean or Director

Date

4-23-15

Approved ☐

Denied ☐

College Dean or Director

Date

2. Graduate Council Action: (for graduate level courses)

Approved ☐

Denied ☐

Dean of Graduate School

Date

3. University Undergraduate Academic Council Action:

For undergraduate level courses only

Approved ☐

Denied ☐

Associate Provost

Date

4. University General Education Council Action: (when applicable)

Approved ☐

Denied ☐

Provost or designee

Date

5. University Budget Committee Action: (when applicable)

When applicable – see New Course Application Instructions

Approved ☐

Denied ☐

Chair, University Budget Committee

Date

6. Academic Provost Action: (for all courses)

Approved ☐

Denied ☐

Provost

Date

7. President of the University Action: (for all courses)

Approved ☐

Denied ☐

President

Date

Attach notes, comments, or conditions from appropriate councils: