ENGINEERING FACULTY DOCUMENT NO. 11-00

JUNE 26, 2000

TO: ENGINEERING FACULTY

FROM: FACULTY OF THE SCHOOL OF NUCLEAR ENGINEERING

DATE: JUNE 26, 2000

SUBJECT: NEW COURSE

The Faculty of the School of Nuclear engineering has approved the new undergraduate course described below. This action is now for consideration and approval to the Committee on Faculty Relations (CFR) and the Engineering Faculty.

NUCL 356 **HEAT TRANSFER LAB**
Sem. 2, Class 1, Lab. 2, Cr. 1
Co-requisite: NUCL 351 or equivalent

Companion laboratory course offered with NUCL 351 to illustrate various heat transfer phenomena applied to nuclear reactor systems and design.

REASON: This course was offered as NUCL 355 Nuclear Thermalhydraulics Laboratory, Sem. 2, Class 1, Lab. 3, Cr. 2. It was a companion course for both NUCL 350 (Nuclear Thermalhydraulics I) and NUCL 351 (Nuclear Thermalhydraulics II). The topics covered in NUCL 350 and NUCL 351 are, respectively, fluid mechanics and heat transfer. The old course NUCL 355 is now divided into two courses as NUCL 355, Fluid Mechanics Lab, and NUCL 356, Heat Transfer Lab, with one credit each, and will be taught in fall and spring, respectively. The course NUCL 355 covers the fluid mechanics laboratory and the course NUCL 356 covers heat transfer laboratory. For the past two years, these two new courses were tentatively offered as NUCL 497F (for fall semester) and NUCL 497S (for spring semester). During this period, the experiments and content have been systematically improved to improve class interest and learning outcomes.

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE COMMITTEE ON
FACULTY RELATIONS

CFR Minutes #929

Date 10/11/00

Chairman CFR C. D. Sutton

Arden L. Bement, Jr.
Head, School of Nuclear Engineering

NUCL 356

Heat Transfer Lab

1. **Justification:** The course is a companion laboratory course to NUCL 351, Nuclear Thermalhydraulics II. This is the second of an integrated two-course sequence introducing the concepts of nuclear reactor fluid transport and associated heat transfer with applications to design and safety.

2. **Course Level:** Junior Engineering Course

3. **Objectives:** To provide junior engineering students with experimental aspects of heat transfer phenomena related to nuclear reactor systems.

4. **Co-requisite:** NUCL 351 or equivalent

5. **Course Instructor:** Nuclear engineering faculty will teach the course.

6. **Course Outline:** The course consists of a class per week and a total of three laboratory experiments:

    1) Transient Heat Conduction
    2) Forced Convection Heat Transfer
    3) Pool Boiling and Critical Heat Flux.

    A prelab problem will be given with every experiment handout. The objective of the prelab problem is to acquaint the student with the experiment. Students submit solutions to the prelab problem and a formal report on each experiment for grading.