國立成功大學能源工程國際博士學位學程

博士候選人資格考核實施辦法

National Cheng Kung University
International Doctoral Degree Program on Energy Engineering
Implementation Regulations of Qualifying Examination for Doctoral Degree Candidate

106.10.05　一０六學年第一學期第二次學術委員會議通過
107.01.19　一０六學年度第一學期第三次系務會議修訂通過
115.01.8　一一四學年度第一學期第二次系務會議修訂通過

一、一般說明：

依據業奉教育部 98.07.21 台高(二)字第 0980123268 號函准予修正備查。請參考「 國立成功大學博士學位候選人資格核實施要點」。

I. These implementation regulations are made in accordance with the "NCKU Implementation Policy of Preliminary Qualification Examination of Doctoral Degree Candidate."

二、資格考核實施辦法：

(一)資格考核之目的在於鑑定博士研究生之基本專業能力是否足以勝任獨立從事原創性之博士論文研究。

(二)學程主任為博士學位候選人資格考核之總召集人，請總召集人籌組資格考試委員（委員以本校教師為原則）辦理資格考試事宜。

II. Implementation regulations of the qualifying examination:

1. The purpose of the qualifying examination is to test the basic professional ability of Ph.D. students and to see if they are capable of doing original Ph.D. thesis research independently.
2. The academic program chairman shall be the head of the Ph.D. qualifying examination committee, inviting committee members (NCKU faculty in principle) to administer the qualifying examination.

三、本學程博士生應於入學後兩學年內（不含休學時間）通過博士學位資格考核。未依規定年限完成者，依本校實施要點之規定，由本學程通知註冊組勒令退學。博士班資格考核同時開放給學士班與碩士班學生報名參加，惟通過之學科僅得保留兩學年。

III. Ph.D. students shall pass the Ph.D. qualifying exam within two years after admission, excluding periods of leave of absence. Students can take the qualifying examination up to four times. The Registrar Division will expel anyone who fails to pass the qualifying exam in accordance with NCKU regulations. The Ph.D. qualifying exam is also open to undergraduates and master's degree students. The passed subject can be reserved for a maximum of two years.

四、資格考核學科筆試進行方式：

(一) 每學年提出十一至十三門學科，其中工程數學為共同學科。博士學位候選人於其中選試二科，各科通過一半（含）題數，視為通過該科，已通過科目可保留。通過資

格考核需累計通過二門學科筆試。

(二) 資格考核學科筆試於每學年上、下學期各舉行一次；筆試時每門聘請至少 2 位命題委員組成考試委員會(原則上應試者之指導教授需迴避該次之命題)，學程主任為總召集人。

(三) 報名時間：上學期於 10 月最後一週、下學期於 3 月最後一週。請至學程辦公室送交：
(1)博士學位候選人資格考核學科筆試報名表
(2)博士研究生課業及論文指導教授認定通知書(已交認定書者免重複交)

(四) 考試時間：上學期於 12 月最後一週舉行，下學期於 5 月最後一週舉行。

(五) 考試科目：(由以下 11 至 13 門中任選 2 門)
共同學科:(1)工程數學
流力組:(2)流體力學、(3)空氣動力學
熱燃組:(4)高等熱力學、(5)燃燒理論、(6)熱傳學
結構組:(7)彈性力學、(8)結構動力學、(9)複合材料力學
控制組:(10)自動控制、(11)數位控制
能源學程：(12)電力系統、(13)能源材料

IV. Methods of qualifying written exam:

1. There will be 11-13 subjects for the qualifying exam in each academic year. Each group will provide two to three subjects, whereas Engineering Mathematics is the common subject among them. Ph.D. candidates shall select two subjects out of the provided subjects. If they answer half of the questions correctly, they are considered to have passed the subject, which can be reserved for a period of two years. To pass the qualifying exam, Ph.D. candidates must pass a total of two subjects.
2. The qualifying written takes place once every semester. There will be two members who provide the exam questions to form a committee, and the Ph.D. student's advisor should avoid participating in the committee. The chairman will become the head of the committee.
3. Registration time: Last week of October and March.
   Submit the following documents to the academic program office:
   (1) Application form for Ph.D. Qualifying Written Examination
   (2) Confirmation Form of Academic Advisor
4. Examination time: Last week of December and May.
5. Examination subjects: Choose two out of 11-13 subjects
   Common required subject: (1) Engineering Mathematics
   Fluid and Aero Dynamics Group: (2) Fluid Mechanics (3) Aerodynamics
   Combustion, Heat Transfer, and Jet Propulsion Group: (4) Advanced Thermodynamics (5) Combustion Theory (6) Heat Conduction
   Structure and Material Group: (7) Theory of Elasticity (8) Dynamics of Structure (9) Mechanics of Composite Material
   Navigation and Control Group: (10) Automatic Control (11) Digital Control
   Energy Group: (12)Power System (13)Energy Materials

五、 成績優異學生免筆試

修讀本學程(含航太所)研究所核心課程(限英語授課)，入學後兩學年內（不含休學時間)，由學生自選 3 門課程，修課成績為班排前 25%(含)即視同筆試通過，博二結束以前提出申請且該核心課程至多往前追朔 3 年。

航太所核心課程：(由以下課程中任選 3 門)

航太所熱燃組:

(1)高等熱力學或物理氣體動力學，該2門課程選擇1門。
(2)熱傳導學或熱對流學或熱輻射學，該3門課程選擇1門。
(3)火箭推進或噴射推進理論，該2門課程選擇1門。
(4)燃燒理論(一)或燃燒理論(二)，該 2 門課程選擇 1 門。

航太所結構組:

(1)結構動力學或高等動力學，該2門課程選擇1門。
(2)複合材料力學或複合材料結構，該2門課程選擇1門。
(3)彈性力學或異向性彈性力學或連體力學，該3門課程選擇1門。
(4)結構有限單元法或邊界元素分析，該2門課程選擇1門。
(5)結構最佳化設計

航太所控制組:

(1)飛行動力學或太空力學，該2門課程選擇1門。
(2)線性系統原理
(3)最佳控制原理
(4)數控動力系統
(5)非線性控制
(6)現代衛星導航

航太所流力組:

(1)高等空氣動力學
(2)高等流體力學
(3)邊界層理論
(4)氣體動力學
(5)渦輪發動機

本學程:

(1)熱傳導學
(2)熱對流學
(3)熱輻射學
(4)燃燒理論(一)
(5)高等工程數學(一)
(6)高等流體力學

V.

Waiver of Written Examination for Outstanding Students:

Students from the International Master's and Ph.D. degree programs on Energy in Engineering who demonstrate exceptional academic performance may be exempt from the written examination. Within the first two academic years after admission (excluding any periods of leave), the students mentioned above may choose three core courses, which must be conducted in English, from the curriculum of the International Master's and Ph.D. degree programs on Energy in Engineering and

the graduate program of the Department of Aeronautics and Astronautics. If their grades in each selected course rank within the top 25% of the class (inclusive), they will be deemed to have passed the written examination. The application must be submitted before the end of the second year of the Ph.D. program, and the core course(s) may be counted retroactively for up to three years.

The core courses are listed as follows: (choose 3 out of the subjects listed below)

Combustion, Heat Transfer, and Jet Propulsion Group:
(1) Advanced Thermodynamics or Physical Gas Dynamics (choose either one).
(2) Conduction Heat Transfer, Convection Heat Transfer, or Radiation Heat Transfer (choose 1 out of 3 subjects).
(3) Rocket Propulsion or Introduction to Propulsion (choose either one).
(4) Combustion Theory (1) or Combustion Theory (2) (choose either one).

Structure and Material Group:
(1) Dynamics of Structure or Advanced Dynamics (choose either one).
(2) Mechanics of Composite Materials or Mechanics of Composite Structures (choose either one).
(3) Advanced Elasticity, Anisotropic Elasticity, or Continuum Mechanics (choose 1 out of 3 subjects).
(4) Finite Element Methods in Structures or Boundary Element Method (choose either one).
(5) Optimum Structural Design

Navigation and Control Group:
(1) Flight Vehicle Dynamics or Space Mechanics (choose either one).
(2) Linear System theory
(3) Optimal Control Theory
(4) Digital Control of Dynamics System
(5) Nonlinear Control
(6) Satellite Navigation Modernization

Fluid and Aero Dynamics Group:
(1) Advanced Aerodynamics
(2) Advanced Fluid Dynamics
(3) Boundary Layer Theory
(4) Gas Dynamics
(5) Gas Turbine Theory (Turbo Engine Principles) 渦輪發動機

Energy Group:
(1) Conduction Heat Transfer
(2) Convection Heat Transfer
(3) Radiation Heat Transfer
(4) Combustion Theory (1)
(5) Advanced Engineering Mathematics (1)
(6) Advanced Fluid Dynamics

六、 博士論文提審口試須於博士候選人資格考核通過後一年內提出。

VI. Ph.D. candidates should apply for dissertation verification within one year after passing the qualifying examination

七、 本辦法經航太系系務會議通過後實施，修訂時亦同。

VII. These regulations and the revisions are in effect and subject to the approval of the Department Affairs Meetings.