

# 國立清華大學動力機械工程學系博士班研究生資格考試辦法

## Regulations for Doctoral Qualifying Exam

### Department of Power Mechanical Engineering, National Tsing Hua University

80年11月15日80學年度第4次系務會議通過  
87年10月22日87學年度第4次系務會議修正通過  
90年2月23日89學年度第6次系務會議修正通過  
91年9月20日91學年度第2次系務會議修正通過  
91年11月22日91學年度第4次系務會議修正通過  
95年10月26日95學年度第3次系務會議修正通過  
96年8月17日96學年度第1次系務會議修正通過  
99年4月29日98學年第8次系務會議修正通過  
100年5月3日99學年度第8次系務會議修正通過  
103年11月11日103學年度第1次臨時系務會議修正通過  
103年11月27日103學年度第4次系務會議修正通過  
104年2月26日103學年度第7次系務會議修正通過  
106年11月4日106學年度第2次系務會議修正通過  
106年12月28日106學年度第3次系務會議修正通過  
108年3月28日107學年度第6次系務會議修正通過  
108年10月31日108學年度第3次系務會議修正通過  
109年12月31日109學年度第4次系務會議修正通過

[(Chinese Version) Verified and Approved at the Department Affairs Meeting on Dec. 31, 2020]

[(English Version) Revised on Feb. 2, 2021]

- 一、 每位博士班研究生(以下簡稱該生)，原則上在入學後一學期內選定論文指導教授及確定研究方向，再據此由論文指導教授召集，組成該生之「博士班研究生資格考試委員會」(以下簡稱委員會)。
  - I. Each doctoral student (called as “students” below) should choose an advisor and decide the research direction by the end of the first semester in the program. The advisor should be in charge of suggesting members to form the “Doctoral Qualifying Exam Committee” (referred as “Committee” below) for students.
- 二、 委員會原則上由論文指導教授及二位以上(含)系內教授、副教授、助理教授組成。如有必要可額外尋系外教授、副教授、助理教授或相關資格人士擔任之。
  - II. The Committee should be consisted of the student’s advisor and at least 2 PME full-time faculty members. Professors, associate professors, assistant professors, or other professionals from outside of PME are allowable if needed.
- 三、 委員會之任務在於：
  1. 認同該生所提之修課計畫及論文研究方向。
  2. 了解該生之修課表現及研究進度。
  3. 擔任該生之資格考口試委員。

III. Jobs of the Committee:

1. To approve students' study plan and research direction
2. To review students' academic performance and research progress
3. To be the examiner at students' oral exam

四、 博士班研究生資格考試包含學科測驗及口試。該生於申請資格考口試前應先通過學科測驗。

IV. The qualifying exam includes the subject test and the oral exam. Before applying for the oral exam, students are required to pass the subject test.

五、 系辦公室應於每學期開學一週內，公告該學期學科測驗科目及負責教師。

V. The Department Office should announce the subjects prescribed and their instructors within one week after the beginning of school each semester.

六、 博士班研究生通過 4 門碩博士班相關科目，視為通過學科測驗。其中通過科目至少必須含 2 門基本學科；其餘科目須由指導教授同意，且必須是碩博士班修習的課程。基本學科科目共 12 門，由各學科專業組提供碩博士班課程各 2 至 3 門。通過成績標準如下：4 門科目至少有 2 門成績應在 85 分或 A(含)以上；其餘科目成績應在 80 分或 A-(含)以上。

VI. Students who have completed 4 graduate professional courses are considered as passing the subject test. Among the 4 courses, at least 2 must be fundamentals courses. Others may be graduate professional courses that are approved by the advisor. Fundamental courses are 12 graduate courses offered by each cluster (2 to 3 from each cluster). A minimum of 2 courses have to be completed with score of at least 85 over scale of 100 or with grade of at least A. Others have to be with score of at least 80 over scale of 100 or with grade of at least A-.

七、 本系碩士班應屆畢業生考上博士班且於錄取年度入學者，其在碩士班期間曾修習之基本學科測驗科目成績符合第六條規定者，經學術委員會審核通過，可抵減該門基本學科測驗科目。

VII. If new master graduates from PME Department who had completed any of the fundamental courses during the master program with a qualified grade enroll the doctoral program in the year of admission, the course can be waived with the approval of the Academic Committee.

八、 該生未通過學科測驗科目任一門時，得依第五條規定向系辦公室提出申請重複修讀該門課程，並由系辦公室通知該門任課教師。重複修讀時，應依課程之規定繳交作業和參加考試，唯不再重計學分數。

VIII. If students fail to complete any of the fundamental courses with a qualified grade, they may apply for retaking the course at the Department Office. The administration staff should notice the instructors. Students will still have to follow class regulations to submit assignments and attend exams while the credits will not be counted.

九、 博士班研究生申請資格考口試前須檢附下列資料送交學術委員會審查，資格審定後方可進行資格考口試：

- a. 博士班資格考試研究生之基本資料表。
- b. 博士班研究生資格考試委員名冊-需指導教授親簽。
- c. 四門科目基本學科審定表正本。
- d. 成績單正本。

通過基本學科測驗且論文研究有初步成果後，得申請舉辦口試，口試以公開方式進行之。口試後，委員會應對口試結果提出書面報告。口試須獲委員會全體委員同意方得通過。

IX. Students have to submit following documents to the Academic Committee. They may have their oral exams only after being approved.

- a. Application Form for the Doctoral Qualifying Exam
- b. List of Committee Members for the Doctoral Qualifying Exam (requires advisor's signature)
- c. Original copies of 4 Review Forms of Subject Test Courses for Doctoral Students attached to Review Form of Fundamental Courses for Doctoral Qualifying Exam
- d. An original copy of transcript with grades of all semesters

十、 口試如未通過者，可在三個月後申請再試，以一次為限。入學後三年內（不含休學期間）如仍未能通過者，應予退學。

X. Students who do not pass the Oral Exam may reapply 3 months later. However, only one application for re-examination is allowed. Students who do not pass the Qualifying Exam within 3 years after entering the program (suspension period is excluded) shall be ordered by the university to withdraw from study.

十一、 本辦法由學術委員會訂定，經系務會議通過後施行。

XI. These regulations are established by the Academic Committee, and are implemented after being verified and approved at the Department Affairs Meeting.

# 附錄 博士班研究生資格考口試執行細則

## *Appendix*

### **Enforcement Rules of Doctoral Qualifying Oral Exam**

87年10月22日87學年度第4次系務會議通過

90年2月23日89學年度第6次系務會議修正通過

[(Chinese Version) Verified and Approved at the Department Affairs Meeting on Feb. 23, 2001]

[(English Version) Revised on Apr. 1, 2020]

#### 一、口試前審查：

##### I. Reviewing procedures prior to the oral exam:

- (1) 申請考試之學生至少須於口試日期二星期前將論文研究計畫書及相關資料（碩博士班成績單及附件所規定之表格），送交博士班研究生資格考試委員會審查，委員會召集人由該生指導教授擔任。

Students have to submit the dissertation proposal along with other required documents (original copies of transcripts of both master and doctoral degrees and attached forms) at least 2 weeks before the proposed date of the oral exam to the “Doctoral Qualifying Exam Committee” (referred as “Committee” below). The advisor should serve as the chair of the Committee.

- (2) 召集人須在口試前與其他審查委員商議，審查該生之論文研究計畫書及相關資料，決定是否准予如期口試，必要時得請該生補充資料後再予審查。

The chair has to review the dissertation proposal and other submitted documents with the other committee members to examine if the student is qualified for having the oral exam on the proposed date. If necessary, supplementary documents will be required before re-reviewing.

- (3) 如委員會決定准予口試，應在口試前一週公告口試日期及地點。

If the oral exam is approved by the Committee, the date and the place should be announced a week before the exam.

## 二、 論文研究計畫發表：

### II. Dissertation proposal presentation (oral defense)

以公開發表方式進行，發表時間以 30 分鐘為原則。

The oral defense shall be open to the public. It is expected that this will not exceed 30 minutes.

## 三、 口試

### III. Oral exam

- (1) 各委員於口試前共同擬妥口試題目，各位委員口試時間以 20 分鐘為原則，並自行記錄、評分。

The committee members should be prepared to ask questions. Each committee member is allowed 20 minutes to question the student. They should take notes and give evaluation individually during the exam.

- (2) 口試結束後，經各委員充分討論，獲全部委員同意通過或有條件通過者，該生為資格考試及格；惟有條件通過資格考試者，應由指導教授負責督導該生完成委員會所訂之條件。

The student passes the oral exam if the Committee votes *Pass* or *Pass with Conditions*. However, a student who passes with conditions should revise the dissertation according to the Committee's suggestions under supervision of the advisor.

- (3) 口試結束後，委員會應於三天內將該生論文計畫書及口試優缺點和資格考試結果之書面報告，交系辦公室打印建檔存查，並由系辦公室通知該學生考試結果。

After the oral exam, the Committee should send the student's dissertation proposal and the evaluation forms to the Department Office within 3 days. The Department Office will then inform the student of the result of the exam.

## 四、 本細則經系務會議通過後實施，修正時亦同。

### IV. These rules and any amendments shall be implemented after being verified and approved at the Department Affairs Meeting.

104 年 2 月 26 日 103 學年度第 7 次系務會議報告通過  
106 年 11 月 2 日 106 學年度第 2 次系務會議報告通過  
106 年 12 月 28 日 106 學年度第 3 次系務會議報告通過  
107 年 10 月 25 日 107 學年度第 3 次系務會議報告通過  
108 年 3 月 28 日 107 學年度第 6 次系務會議修正通過  
108 年 10 月 31 日 108 學年度第 3 次系務會議修正通過  
109 年 12 月 31 日 109 學年度第 4 次系務會議修正通過

[(Chinese Version) Verified and Approved at the Department Affairs Meeting on Dec. 31, 2020]

[(English Version) Revised on Feb. 2, 2021]

Annex 1

## 動力機械工程學系博士班研究生資格考試

### 基本學科測驗科目 (共 12 門)

## 12 Fundamental Courses for Doctoral Qualifying Exam

1. PME5111 層流理論 Laminar Flow Theory
2. PME5122 熱對流 Heat Convection
3. PME5131 燃燒學概論 Introduction to Combustion
4. PME5201 線性系統理論 Linear System Theory
5. PME5203 數位控制系統 Digital Control Systems
6. PME5345 彈性力學 Elasticity
7. PME5343 有限單元法 Finite Element Methods
8. PME5342 高等振動學 Advanced Mechanical Vibrations
9. PME5442 微奈米製造技術  
Micro and Nano Fabrication Technology
10. PME5435 精密機械設計一 Precision Machine Design I
11. PME5443 光電子學 Opto Electronics
12. NEMS5100 微奈米科技 Micro & Nano Technology

## Review Form of Subject Test Courses for Doctoral Students

Department of Power Mechanical Engineering, National Tsing Hua University

☆ Name: \_\_\_\_\_ Application Date: \_\_\_\_\_ (Y/M/D)

☆ Student ID No.: \_\_\_\_\_ Entry Date: \_\_\_\_\_ (Y/M)

☆ Advisor (Signature): \_\_\_\_\_

Course No.	PME	Semester/Year	
Course Title			
Passed	<input type="checkbox"/> Score/Grade: 85/A or above <input type="checkbox"/> Score/Grade: 80/A- or above		
Instructor of the course (Signature): _____ Date: _____ (Y/M/D) <b>(Courses completed during the doctoral program or meet the criterion outlined in Note 1 below are allowed to be waived.)</b>			

☆ Academic Committee Chair: \_\_\_\_\_ Date: \_\_\_\_\_

☆ PME Chair: \_\_\_\_\_ Date: \_\_\_\_\_

### **Notes:**

1. If new master graduates from PME Department who had completed any of the fundamental courses during the master program with a qualified grade enroll the doctoral program in the year of admission, the course can be waived with the approval of the Academic Committee.
2. This form (with transcript) should be reviewed by the instructor who offered the particular course before submitting to PME Office, the Academic Committee Chair, and PME Chair.
3. This form is mandatory before applying for the qualifying exam. Copies should be retained by PME Office and the advisor. The original copy will be kept by the student.

## **Application Form for the Doctoral Qualifying Exam**

Department of Power Mechanical Engineering, National Tsing Hua University

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- Name:
- Student ID No.:
- Entry date (Y/M):
- Proposed date of the oral exam (Y/M/D):
- Times of having applied for the qualifying exam:
- Completed doctoral program courses related to the dissertation:
  
- Research work and achievements related to the dissertation:  
(\*List by year)

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Note: Please submit the form at least 2 weeks prior to the proposed date of the oral exam.



# List of Committee Members for the Doctoral Qualifying Exam

Department of Power Mechanical Engineering, National Tsing Hua University

Student ID No.: \_\_\_\_\_ Name: \_\_\_\_\_

Advisor (Signature): \_\_\_\_\_

Title of Dissertation Proposal: \_\_\_\_\_

## Committee Members:

Name	Title	Education	Affiliation	Remarks
				Advisor
				<input type="checkbox"/> PME <input type="checkbox"/> Others
				<input type="checkbox"/> PME <input type="checkbox"/> Others
				<input type="checkbox"/> PME <input type="checkbox"/> Others

### Notes:

- (1) At least 3 committee members must be from PME. The advisor must be within the committee.
- (2) Committee members not from PME should be listed in the columns above and be approved by the Academic Committee.
- (3) The form will be kept as an attachment for the review of application for the final oral defense.

Academic Committee Chair: \_\_\_\_\_

PME Chair: \_\_\_\_\_

Date: \_\_\_\_\_ (Y/M/D)

### Notes:

- (1) Attach to this application a one-page dissertation proposal abstract
- (2) Please submit the form at least 2 weeks prior to the proposed date of the oral exam.

# Review Form of Fundamental Courses for Doctoral Qualifying Exam

Department of Power Mechanical Engineering, National Tsing Hua University

Student ID No.: \_\_\_\_\_

Student Name (Print & Signature): \_\_\_\_\_

Application date: \_\_\_\_\_ First time of applying: ( Y / N )

Advisor Name (Print & Signature): \_\_\_\_\_

Course No.	Course Title	Score/Grade	Reviewer (Academic Committee Chair)	Results (*See Note 2)		
				Passed	Failed	Remarks

Notes:

1. Attach to this application a current transcript.
2. Students who have completed 4 graduate professional courses are considered as passing the subject test. Among the 4 courses, at least 2 must be fundamentals courses. Others may be graduate professional courses that are approved by the advisor. Fundamental courses are 11 graduate courses offered by each cluster (2 to 3 from each cluster). A minimum of 2 courses have to be completed with score of at least 85 over scale of 100 or with grade of at least A. Others have to be with score of at least 80 over scale of 100 or with grade of at least A-.
3. Please submit the form at least 2 weeks prior to the proposed date of the oral exam.

## Evaluation of Doctoral Qualifying Exam

Department of Power Mechanical Engineering, National Tsing Hua University

Student Name:

Student ID No.:

Title of Dissertation Proposal:

The student has:  Passed  Failed

Committee Report Summary:

Signature of Committee Chair and Committee Members:

Date (Y/M/D):