Mahidol University
Faculty of Medical Technology

# GRADUATE STUDIES HANDBOOK

# INTERNATIONAL PROGRAMS

## POSTGRADUATE EDUCATIONAL ADMINISTRATION DIVISION

## FACULTY OF MEDICAL TECHNOLOGY, MAHIDOL UNIVERSITY

**Faculty of Medical Technology, Mahidol University (MUMT)**

999 Phutthamonthon 4 Road Salaya, Phutthamonthon
Nakhon Pathom 73170 Thailand

www.mt.mahidol.ac.th

## History

Mahidol University has its origins in the establishment of **Siriraj Hospital** in 1888 by His Majesty King Chulalongkorn (Rama V), and the hospital's medical school is the oldest institution of higher learning in Thailand, granting its first medical degree in 1893.

Later becoming the University of Medical Sciences in 1943, **Mahidol University** was renamed with great honor in 1969 by H.M. King Bhumibol Adulyadej , after his Royal Father, **H.R.H Prince Mahidol of Songkla ,** who is widely known as **the 'Father of Modern Medicine and Public Health in Thailand'.**

Mahidol University has since developed into one of the most prestigious universities in Thailand, internationally known and recognized for the high caliber of research and teaching by its faculty, and its outstanding achievements in teaching, research, international academic collaboration and professional services. This diversified institution now offers top quality programs in numerous social and cultural disciplines, including the most doctoral programs of any institution in Thailand, yet has maintained its traditional excellence in medicine and the sciences.

## The Motto & Philosophy

The overall philosophy of Mahidol University is best captured by the university motto: Attānaṁ upamaṁ kare อตฺตานํ อุปมํ กเร In the Pali language, this translates as the Golden Rule in English: 'Do unto others as you would have others do unto you'. This underlying theme pervades every aspect of Mahidol University as it endeavors to imbue graduates with the conviction that, aside from achieving academic excellence, they have a solemn duty to improve the quality of life for all humanity. The university's namesake, H.R.H. Prince Mahidol, has eloquently stated Mahidol University's universal view of higher education: 'True success is not in the learning, but in its application to the benefit of mankind'. With the Royal Philosophy as a guiding light, Mahidol University continues to take progressive action to internationalize and diversify itself, so that its graduates will be globally informed as well as socially aware. In this globalized and interconnected world, Mahidol University recognizes that achieving academic and moral excellence requires maintaining strong relationships with the world community, and offering lifelong and equitable quality education for all.

## Determination Statement: "Wisdom of the Land"

The Signature of
His Royal Highness Prince Mahidol

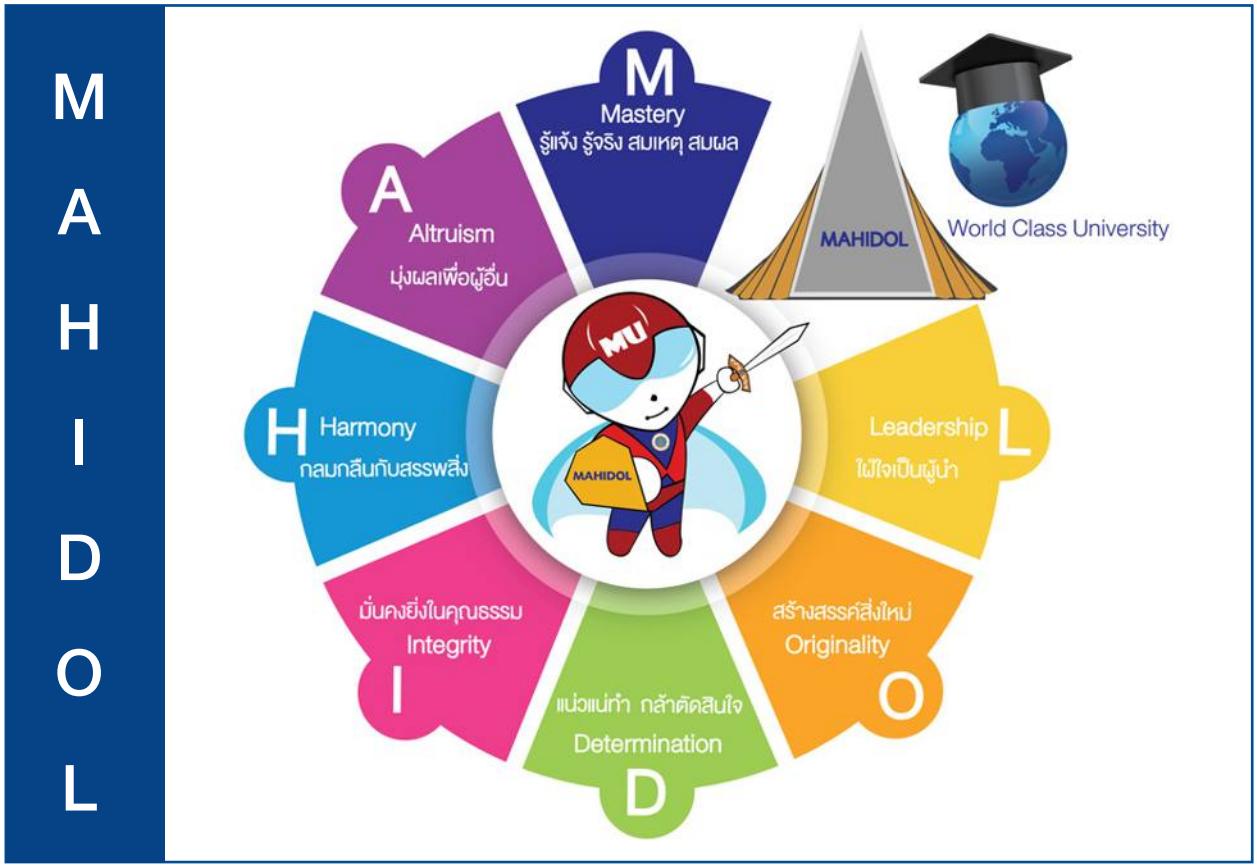
## Vision

Mahidol University is determined to be a world class university.

## Mission

To excel in health, sciences, arts, and innovation with integrity for the betterment of Thai society and the benefit of mankind.

## Core Values




## Strategies Objectives

1. Research Excellence
2. Teaching and Learning Excellence
3. Health Care and Services Excellence
4. Internationalization

## Administrative Strategies

Harmony in Diversity

ICT-Based University & Resource Optimization

Human Capital

## The Symbolic Plant

Kan phai Mahidol (Afgekia mahidoliae B. L. Burtt & Chermsir.), the symbolic plants of Mahidol University, was named to commemorate the late Princess Mother, Somdej Phra Sri Nakarindra Boromarajajonnani (then Princess Srisangwan Mahidol). It is a rare tropical plant found in limestone mountains in the western side of Thailand. One among only three known species in the genus, A. mahidoliae is a climber in the pea family (Fabaceae). The plant possesses purplish and whitish pea-like florets in inflorescences which are usually in blooms during August to November…

## Continually Expanding in the New Millennium

On 16 October 2007, the Thailand National Legislative Assembly approved Mahidol University as an autonomous institution. This transformation will enhance the university's efficiency, flexibility, and ability to innovate, and standardize its practices with those of other world-class universities. Recognizing the challenges facing humanity in the new millennium and the fundamental responsibility of higher education institutions to assist in meeting those challenges, Mahidol University follows a policy of constant expansion in the breadth and depth of its facilities and academic endeavors. By remaining globally aware and staying abreast not only to meet the needs of Thailand for education, training and research, but through internationalization, the needs of the global community as well. Philosophy, Vision, and Mission of the University

# FACULTY OF MEDICAL TECHNOLOGY
# MAHIDOL UNIVERSITY

The Faculty of Medical Technology, Mahidol University (MUMT) was founded as the first medical technology school in Thailand in 1957 by the late Professor Dr.Vikul Viranuvatti, who was the founding Dean and the pioneer of the medical technology profession in Thailand.

- To produce highly skilled and competent graduates in medical technology and radiological technology
- To advance research and innovation
- To excel in services excellence for the health promotion and the betterment of the society

## THE DETERMINATION DRIVING THE FACULTY TO ACHIEVE ITS GOALS IS

## “ The leading institute developing for the betterment of society ”

The faculty has initially based at Siriraj Hospital in Bangkok Noi, Bangkok and has then expanded its second location to Salaya, Nakhon Pathom.

The Faculty of Medical Technology at Salaya

The Faculty of Medical Technology at Bangkok-Noi

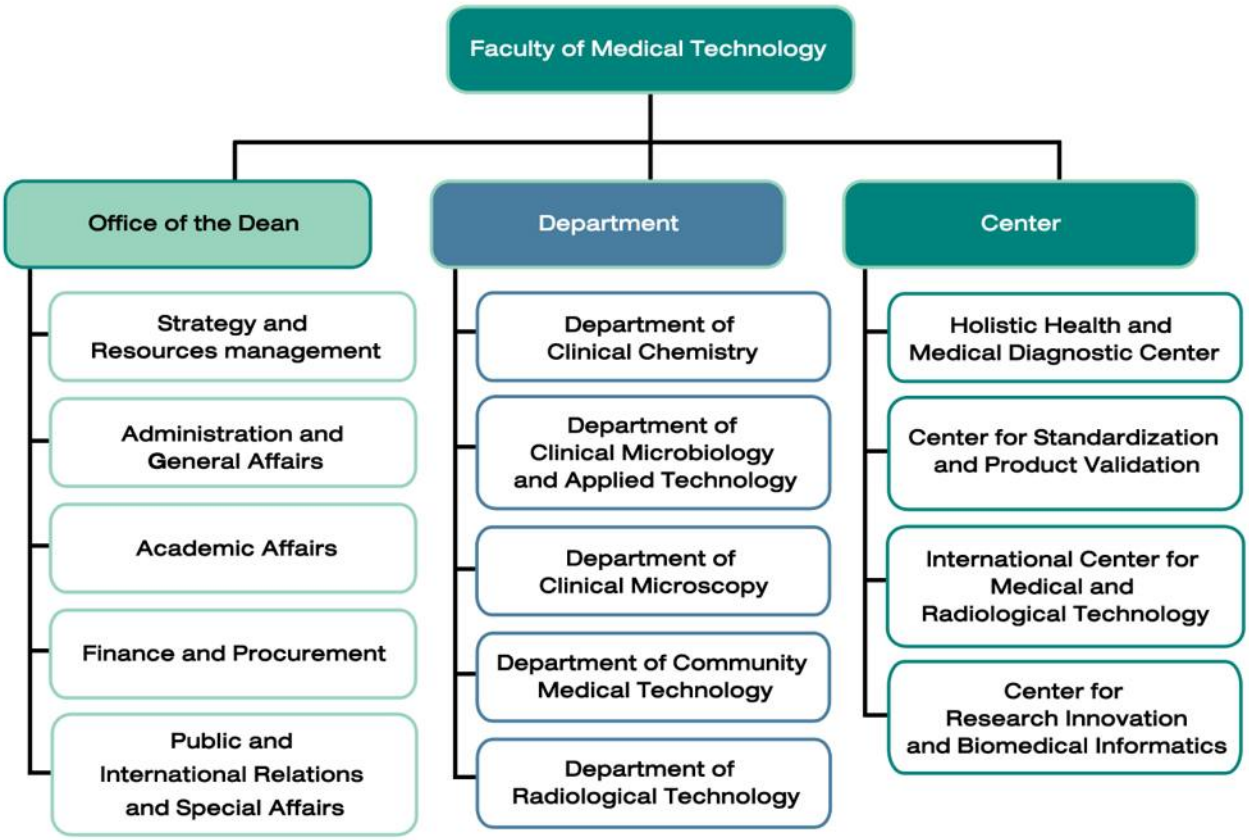
## Vision

The faculty is geared to be a model organization of Medical Technology and Radiological Technology with international standards focused on creating knowledge, innovation and services for healthcare and benefit of the society in the year 2027

## Mission

1. To produce highly skilled and competent graduates in medical technology and radiological technology
2. To advance research and innovation
3. To excel in services excellence for the health promotion and the betterment of the society

# Organization Structure



# Administrative Team

Asst. Prof. Dr.Chotiros Plabplueng
Dean
chotiros.pla@mahidol.ac.th

Lecturer Dr. Lertyot Treeratanapiboon
Deputy Dean
lertyot.tre@mahidol.ac.th

Asst. Prof. Dr.Waraporn Chan-On
Deputy Dean for Academic Affairs
waraporn.cho@mahidol.ac.th

Assoc. Prof. Dr.Kulachart Jangpatarapongsa
Deputy Dean for
Research and Innovation
kulachart.jan@mahidol.ac.th

Assoc. Prof. Dr. Wilasinee Jeungprasopsuk
Deputy Dean for Finance and Assets
wilasinee.suw@mahidol.ac.th

Asst. Prof. Dr. Likit Preeyanon
Acting Deputy Dean for Information Technology
likit.pre@mahidol.ac.th

Asst. Prof. Dr. Sumana Dakeng
Assistant Dean for Policy and Planning
sumana.dak@mahidol.ac.th

Asst. Prof. Dr.Prasong Khaenam
Assistant Dean for Academic Services
prasong.kha@mahidol.ac.th

Asst. Prof. Dr. Kamonrat Phopin
Assistant Dean for
Administration and Human Resources
kamonrat.php@mahidol.ac.th

Asst. Prof. Dr. Rujira Wanotayan
Assistant Dean for International Relations and
Corporate Communication
rujira.wan@mahidol.ac.th

Asst. Prof. Dr.Tienrat Tangchaikeeree
Assistant Dean for
Student Affairs and Alumni Relations
tienrat.tan@mahidol.ac.th

# GRADUATE STUDIES PROGRAMS & STUDY PLANS

## DOCTOR OF PHILOSOPHY PROGRAM

### in Medical Technology (International Program)

# Ph.D. program in Medical Technology (International Program)
# Latest revised in 2022
# For academic Year 2024 enrollment

**1. Program Title** Doctor of Philosophy Program in Medical Technology (International Program)

**2. Name of Degree**

**In Thai :-**

ชื่อเต็ม : ปรัชญาดุษฎีบัณฑิต (เทคนิคการแพทย์)

ชื่อย่อ : ปร.ด. (เทคนิคการแพทย์)

**In English :-**

Full name : Doctor of Philosophy (Medical Technology)

Abbreviation : Ph.D. (Medical Technology)

**3. Responsible unit**

Faculty of Medical Technology, Mahidol University

Faculty of Graduate Studies, Mahidol University

## 4. Philosophy

The Doctor of Philosophy Program (Ph.D.) in Medical Technology is the international program that emphasizes learning and researching for the innovations. The program is designed to equip students with the strong research competency, analytical and critical thinking skills, problem-solving skills, innovative capacity together with morality and ethics essential for finding and implementing innovative solutions and/or discovering novel body of knowledge and innovation that add meaningful knowledge to the field of study, contribute and lead to country and global sustainable development.

The Ph.D. program in Medical Technology covers the multi-disciplinary field of Medical Technology profession, radiological technology profession, human health, disease treatment, health informatics, advanced technology and other related fields. The program provokes into an active learning process of the students via multi-disciplinary approaches such as outcome-based learning, goal-oriented activities, problem solving, and individual experience sharing and searching for new information via information technology. Innovative research and publication on the dissertation work in an international standard journal are also required for degree graduation.

## 5. Distinctive features of the program

The Ph.D Program in medical technology at MUMT aims to bridge basic sciences, professional knowledge, advanced science and technology knowledge, together with fostering research to generate and/or discover novel body of knowledge/state of the art/innovation and leads to creation-innovation development in order to that adds meaningful knowledge to the field of study as well as contribute to the sustainable development of the country.

The program aims to develop strong research competent graduate students through the conduct of original research leading to the doctoral dissertation. The advantages of pursing a Ph.D in medical technology at MUMT include participation in cutting-edge medical technology, radiological technology and biomedical research and preparation for pursuing careers in academia, medical research, and professional arena.

Another distinctive feature of the Ph.D program is that graduate students participating in a multi-disciplinary model of education. The program provides learning system based on outcome based education, problem based learning, informatics searching and researching with publication in peer reviewed international journal as well as translational research for mankind. Moreover, the program offers a very interdisciplinary research environment. Students are encouraged to develop their own research questions with supervision from research, methodological and content expertise. Furthermore, our program is designed to focus on developing skills in database and research management.

## 6. Expected program learning outcomes (PLOs)

By the end of the program, student will be expected to achieve the indicated PLOs through variety of learning method and assessed both during the learning process and final thesis defensive examination. The award of Ph.D. is based on the evidence of students demonstrate the achievement of the expected learning outcomes (PLOs) as follows;

| PLOs | The graduates of the program will be able to: |
|---|---|
| 1 | Possess moral standards and ethics in academic, research, and medical technology profession |
| 2 | Construct the new knowledge or innovation involving medical technology |
| 3 | Conduct research works to generate new knowledge or innovation in medical technology |
| 4 | Demonstrate leadership and interpersonal skills |
| 5 | Demonstrate effective communication skills in academic and research to exchange and share knowledge to public in both national and international levels |
| 6 | Perform effective information technology, data analytics and bioinformatics skills |

**7. Language of study and assessment:** English

**8. Student Enrollment:** Both Thai and international students

**9. Admission requirement:** The requirements admission of each study plan are as follow.

### Study Plan 1 (Research based)

1. Hold a master degree in Medical Technology, Health Science or other related disciplines from academic institute accredited by the Office of the Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation
2. Have cumulative GPA not less than 3.50
3. Have an English Proficiency Examination score as the requirement of Faculty of Graduate Studies
4. Have at least 1 year working experience in Medical Technology or other relates fields
5. Have at least 1 original research publication or academic work in peer reviewed national or international journal as the first author or corresponding author
6. A student who does not meet qualification could apply to the program if the permission is granted by the Administrative Program Committee in concurrence with the Dean of The Faculty of Graduate Studies, Mahidol University

## Study Plan 2 (Course work and research based)

### Plan 2.1 For students with Master Degree in Medical Technology or other related field.

A student must

1. Hold a master degree in Medical Technology, Health Science or other related disciplines from academic institute accredited by the Office of the Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation
2. Have cumulative GPA not less than 3.50
3. Have an English Proficiency Examination score as the requirement of Faculty of Graduate Studies
4. A student who does not meet qualification criteria no.2-3 could apply to the program if the permission is granted by the Administrative Program Committee in concurrence with the Dean of The Faculty of Graduate Studies, Mahidol University.

### Plan 2.2 For students with Bachelor Degree.

A student must

1. Hold bachelor degree in Medical Technology, Health Science or other related disciplines from academic institute accredited by the Office of the Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation with honors
2. Have cumulative GPA not less than 3.50
3. Have an English Proficiency Examination score as the requirement of Faculty of Graduate Studies
4. A student who does not meet qualification criteria no.2-3 could apply to the program if the permission is granted by the Administrative Program Committee in concurrence with the Dean of The Faculty of Graduate Studies, Mahidol University

## 10. English language requirement

All students are required to obtain an acceptable score of English Proficiency Test approved by the FGS. Acceptable tests and scores are as follows:

| English Proficiency Test (Entrance requirement) | Score |
|---|---|
| IELTS | 3.0 |
| TOEFL (iBT) | 32 |
| MU GRAD Plus (MU Grad Test + Speaking) | 40 |

## 11. Study calendar

Each academic year is divided as follows.

Semester 1 : August - November

Semester 2 : January - May

Summer Semester : May - July (to be announced)

## 12. Criteria on Graduate

| Course Category | Plan 1 Research only | Plan 2 Course work and Research | |
|---|---|---|---|
| | | Plan 2.1 Students with Master Degree * | Plan 2.2 Students with Bachelor Degree |
| 1. Required courses | None or audit | 8 | 15 |
| 2. Elective courses | None or audit | 4 | 9 |
| 3. Dissertation | 48 | 36 | 48 |
| Total credits (not less than) | 48 | 48 | 72 |

* Students with Master Degree in Medical Technology or other related field

## 13. Courses in the curriculum

### Required Courses

### Plan 2 Course work and Research

### Plan 2.1 For students with Master Degree in Medical Technology or other related field (8 credits)

| | | | Credits (lecture – laboratory – self-study) |
|---|---|---|---|
| MTID | 604 | Selected Topic in Medical Technology | 2(2-0-4) |
| ทนคร | 604 | หัวข้อเลือกสรรทางเทคนิคการแพทย์ | |
| MTID | 620 | Research Technology and Innovation Management | 2(2-0-4) |
| ทนคร | 620 | การจัดการนวัตกรรม และเทคโนโลยีการวิจัย | |
| MTID | 626 | Advanced Medical Bioinformatics | 2(1-2-3) |
| ทนคร | 626 | ชีวสารสนเทศการแพทย์ขั้นสูง | |
| MTID | 628 | Advanced Seminar in Medical Technology | 2(2-0-4) |
| ทนคร | 628 | สัมมนาทางเทคนิคการแพทย์ขั้นสูง | |

### Plan 2.2 For students with Bachelor Degree (15 credits)

| | | | Credits (lecture – laboratory – self-study) |
|---|---|---|---|
| MTID | 601 | Clinical Laboratory Administration | 2(1-2-3) |
| ทนคร | 601 | การบริหารห้องปฏิบัติการทางคลินิก | |
| MTID | 605 | Research Methodology | 2(2-0-4) |
| ทนคร | 605 | วิทยาระเบียบวิธีวิจัย | |
| MTID | 618 | Clinical Laboratory Science I | 2(2-0-4) |
| ทนคร | 618 | วิทยาการห้องปฏิบัติการทางคลินิก ๑ | |
| MTID | 620 | Research Technology and Innovation Management | 2(2-0-4) |
| ทนคร | 620 | การจัดการนวัตกรรม และเทคโนโลยีการวิจัย | |
| MTID | 621 | Molecular Genetics and Personalized Medicine | 2(2-0-4) |
| ทนคร | 621 | พันธุศาสตร์ระดับโมเลกุลและการแพทย์จำเพาะบุคคล | |
| MTID | 622 | Biostatistics for Health Science Research | 1(1-0-2) |
| ทนคร | 622 | ชีวสถิติสำหรับการวิจัยวิทยาศาสตร์สุขภาพ | |
| MTID | 626 | Advanced Medical Bioinformatics | 2(1-2-3) |
| ทนคร | 626 | ชีวสารสนเทศการแพทย์ขั้นสูง | |
| MTID | 628 | Advanced Seminar in Medical Technology | 2(2-0-4) |
| ทนคร | 628 | สัมมนาทางเทคนิคการแพทย์ขั้นสูง | |

## Elective Courses

### Plan 2 Course work and Research

**Plan 2.1** For M.Sc. (Medical Technology) degree holders or M.Sc. degree holders in other related field (4 credits)

| | | Credits (lecture – laboratory – self-study) |
|---|---|---|
| MTID 606 | Current Technology in Molecular Biology | 2(2-0-4) |
| ทนคร 606 | เทคโนโลยีปัจจุบันทางชีววิทยาระดับโมเลกุล | |
| MTID 608 | Current Diagnostic Technology and Future Trends | 2(2-0-4) |
| ทนคร 608 | เทคโนโลยีทางการตรวจวินิจฉัยในปัจจุบันและแนวโน้มในอนาคต | |
| MTID 616 | Modern Entrepreneurship | 2(1-2-3) |
| ทนคร 616 | ความเป็นผู้ประกอบการรุ่นใหม่ | |
| MTID 619 | Clinical Laboratory Science II 1(1-0-2) | |
| ทนคร 619 | วิทยาการห้องปฏิบัติการทางคลินิก ๒ | |
| MTID 623 | Selected Topics in Applied and Biomedical Technology | 1(1-0-2) |
| ทนคร 623 | หัวข้อเลือกสรรทางด้านเทคโนโลยีประยุกต์และชีวการแพทย์ | |
| MTID 624 | Precision Medicine and Health Science Application | 2(2-0-4) |
| ทนคร 624 | การแพทย์แม่นยำและการประยุกต์ทางวิทยาศาสตร์สุขภาพ | |
| MTID 625 | Stem Cells and Regenerative Medicine | 1(1-0-2) |
| ทนคร 625 | เซลล์ต้นกำเนิดและเวชศาสตร์ฟื้นฟูสภาวะเสื่อม | |
| MTCH 601 | Advanced Clinical Chemistry | 3(3-0-6) |
| ทนคค 601 | เคมีคลินิกขั้นสูง | |
| MTCH 607 | Advanced Clinical Toxicology | 2(2-0-4) |
| ทนคค 607 | พิษวิทยาคลินิกขั้นสูง | |
| MTCH 615 | Biosensors | 2(1-2-3) |
| ทนคค 615 | ไบโอเซนเซอร์ | |
| MTMS 502 | Current Topics in Hematology | 2(2-0-4) |
| ทนคม 502 | หัวข้อปัจจุบันทางโลหิตวิทยา | |
| MTMS 609 | Advanced Clinical Microscopy | 4(3-2-7) |
| ทนคม 609 | จุลทรรศนศาสตร์คลินิกขั้นสูง | |
| MTMS 612 | Advanced Medical Genetics | 2(2-0-4) |
| ทนคม 612 | พันธุศาสตร์ทางการแพทย์ขั้นสูง | |
| MTMI 601 | Advanced Clinical Microbiology | 3(3-0-6) |
| ทนจค 601 | จุลชีววิทยาคลินิกขั้นสูง | |
| MTMI 613 | Independent Selected Topics in Microbiology | 1(1-0-2) |
| ทนจค 613 | หัวข้อเลือกสรรอิสระทางจุลชีววิทยา | |

| | | |
|---|---|---|
| MTMI 614 | Advanced in Antimicrobial Agents and Drug Resistance | 1(1-0-2) |
| ทนจค 614 | ความก้าวหน้าทางด้านสารต้านจุลชีพและการดื้อยา | |
| MTMI 615 | Emerging and Re-emerging Infectious Diseases | 2(2-0-4) |
| ทนจค 615 | โรคติดเชื้ออุบัติใหม่และอุบัติซ้ำ | |
| MTMI 617 | Advanced Clinical Immunology | 2(1-2-3) |
| ทนจค 617 | ภูมิคุ้มกันวิทยาคลินิกขั้นสูง | |
| MTMI 619 | Gene Cloning and Production of Recombinant Protein in Bacteria | 2(0-4-2) |
| ทนจค 619 | การโคลนยีนและการผลิตโปรตีนรีคอมบิแนนท์ในแบคทีเรีย | |
| MTCM 602 | Health Informatics | 2(1-2-3) |
| ทนทช 602 | สารสนเทศศาสตร์ทางสุขภาพ | |
| MTCM 603 | Selected Topics in Medical Parasitology and Medical Entomology | 2(2-0-4) |
| ทนทช 603 | หัวข้อเลือกสรรทางปรสิตวิทยาการแพทย์และกีฏวิทยาการแพทย์ | |

### Plan 2.2 For students with Bachelor Degree (9 credits)

| | | |
|---|---|---|
| MTID 506 | Design and Construction of Basic Clinical Laboratory Instrument | 3(1-4-4) |
| ทนคร 506 | การออกแบบและสร้างเครื่องมือสำหรับห้องปฏิบัติการคลินิกขั้นพื้นฐาน | |
| MTID 606 | Current Technology in Molecular Biology | 2(2-0-4) |
| ทนคร 606 | เทคโนโลยีปัจจุบันทางชีววิทยาระดับโมเลกุล | |
| MTID 608 | Current Diagnostic Technology and Future Trends | 2(2-0-4) |
| ทนคร 608 | เทคโนโลยีทางการตรวจวินิจฉัยในปัจจุบันและแนวโน้มในอนาคต | |
| MTID 616 | Modern Entrepreneurship | 2(1-2-3) |
| ทนคร 616 | ความเป็นผู้ประกอบการรุ่นใหม่ | |
| MTID 619 | Clinical Laboratory Science II | 1(1-0-2) |
| ทนคร 619 | วิทยาการห้องปฏิบัติการทางคลินิก ๒ | |
| *MTID 623 | Selected Topics in Applied and Biomedical Technology | 1(1-0-2) |
| ทนคร 623 | หัวข้อเลือกสรรทางด้านเทคโนโลยีประยุกต์และชีวการแพทย์ | |
| *MTID 624 | Precision Medicine and Health Science Application | 2(2-0-4) |
| ทนคร 624 | การแพทย์แม่นยำและการประยุกต์ทางวิทยาศาสตร์สุขภาพ | |
| *MTID 625 | Stem Cells and Regenerative Medicine | 1(1-0-2) |
| ทนคร 625 | เซลล์ต้นกำเนิดและเวชศาสตร์ฟื้นฟูสภาวะเสื่อม | |
| MTCH 601 | Advanced Clinical Chemistry | 3(3-0-6) |
| ทนคค 601 | เคมีคลินิกขั้นสูง | |
| MTCH 607 | Advanced Clinical Toxicology | 2(2-0-4) |
| ทนคค 607 | พิษวิทยาคลินิกขั้นสูง | |

| | | |
|---|---|---|
| MTCH 611 | Medical Molecular Genetics | 2(2-0-4) |
| ทนคค 611 | พันธุศาสตร์ระดับโมเลกุลทางการแพทย์ | |
| MTCH 612 | Selected Topics in Clinical Chemistry | 1(1-0-2) |
| ทนคค 612 | หัวข้อเลือกสรรทางเคมีคลินิก | |
| MTCH 614 | Clinical Performance Evaluation of Diagnostic Test | 2(1-2-3) |
| ทนคค 614 | การประเมินประสิทธิภาพทางคลินิกของการทดสอบวินิจฉัย | |
| MTCH 615 | Biosensors | 2(1-2-3) |
| ทนคค 615 | ไบโอเซนเซอร์ | |
| MTMS 502 | Current Topics in Hematology | 2(2-0-4) |
| ทนคม 502 | หัวข้อปัจจุบันทางโลหิตวิทยา | |
| MTMS 605 | Blood Bank Techniques and Immunohematology | 2(1-2-3) |
| ทนคม 605 | เทคนิคทางธนาคารเลือดและวิทยาภูมิคุ้มกันโลหิตวิทยา | |
| MTMS 609 | Advanced Clinical Microscopy | 4(3-2-7) |
| ทนคม 609 | จุลทรรศนศาสตร์คลินิกขั้นสูง | |
| MTMS 612 | Advanced Medical Genetics | 2(2-0-4) |
| ทนคม 612 | พันธุศาสตร์ทางการแพทย์ขั้นสูง | |
| MTMI 601 | Advanced Clinical Microbiology | 3(3-0-6) |
| ทนจค 601 | จุลชีววิทยาคลินิกขั้นสูง | |
| MTMI 610 | Selected Topics in Molecular Microbiology | 1(1-0-2) |
| ทนจค 610 | หัวข้อเลือกสรรทางจุลชีววิทยาระดับโมเลกุล | |
| MTMI 611 | Cells and Tissue Culture Techniques | 1(0-2-1) |
| ทนจค 611 | เทคนิคการเพาะเลี้ยงเซลล์และเนื้อเยื่อ | |
| MTMI 613 | Independent Selected Topics in Microbiology | 1(1-0-2) |
| ทนจค 613 | หัวข้อเลือกสรรอิสระทางจุลชีววิทยา | |
| MTMI 614 | Advanced in Antimicrobial Agents and Drug Resistance | 1(1-0-2) |
| ทนจค 614 | ความก้าวหน้าทางด้านสารต้านจุลชีพและการดื้อยา | |
| MTMI 615 | Emerging and Re-emerging Infectious Diseases | 2(2-0-4) |
| ทนจค 615 | โรคติดเชื้ออุบัติใหม่และอุบัติซ้ำ | |
| MTMI 617 | Advanced Clinical Immunology | 2(1-2-3) |
| ทนจค 617 | ภูมิคุ้มกันวิทยาคลินิกขั้นสูง | |
| MTMI 618 | Technology Trends in Clinical Microbiology | 2(1-2-3) |
| ทนจค 618 | แนวโน้มเทคโนโลยีทางจุลชีววิทยาคลินิก | |
| MTMI 619 | Gene Cloning and Production of Recombinant Protein in Bacteria | 2(0-4-2) |
| ทนจค 619 | การโคลนยีนและการผลิตโปรตีนรีคอมบิแนนท์ในแบคทีเรีย | |

| | | |
|---|---|---|
| MTCM 601 | Population Health and Community Medical Technology | 2(1-2-3) |
| ทนทช 601 | สุขภาพประชากร และเทคนิคการแพทย์ชุมชน | |
| MTCM 602 | Health Informatics | 2(1-2-3) |
| ทนทช 602 | สารสนเทศศาสตร์ทางสุขภาพ | |
| MTCM 603 | Selected Topics in Medical Parasitology and Medical Entomology | 2(2-0-4) |
| ทนทช 603 | หัวข้อเลือกสรรทางปรสิตวิทยาการแพทย์และกีฏวิทยาการแพทย์ | |

In addition to elective courses mentioned above, a student may register other courses in international programs offering by Mahidol University or offering by other universities according to the student's interest with the approval of the dissertation advisor and program committee. The registration must be in compliance with Mahidol University's regulations on Graduate Studies.

## Dissertation

### Plan 1 Research only

#### Plan 1.1 For students with Master Degree

| | | | |
|---|---|---|---|
| MTID | 898 | Dissertation | 48(0-144-0) |
| ทนคร | 898 | วิทยานิพนธ์ | |

### Plan 2 Course work and Research

#### Plan 2.1 For students with Master Degree in Medical Technology or other related field

| | | | |
|---|---|---|---|
| MTID | 699 | Dissertation | 36(0-108-0) |
| ทนคร | 699 | วิทยานิพนธ์ | |

#### Plan 2.2 For students with Bachelor Degree

| | | | |
|---|---|---|---|
| MTID | 799 | Dissertation | 48(0-144-0) |
| ทนคร | ๗๙๙ | วิทยานิพนธ์ | |

## Research Project of the Program

(1) Engineering of Biological and Chemical Polymers for Applications
(2) Data Mining and Biomedical Informatics
(3) Detection Tools and Analytical Process Development
(4) Bioactive Compounds for Medical Applications
(5) Infectious Diseases and Antibiotic Resistant Microorganisms
(6) Molecular Genetics of Human Diseases and Cancer
(7) Vaccine development
(8) Stem Cell Research in Life Science
(9) Biosensor for Diagnostic and Medical Applications

(10) Medical Imaging and Pattern Recognition Analysis

(11) Molecular Informatics for Rational Design and Simulation of Biological and Chemical Entities

(12) Food Safety and Environmental Pollution

(13) Viruses and Neurodegeneration Research

(14) Medical Laboratory Quality Management

(15) Aging and Non-Communicable Disease

(16) Integrative Holistic Health and Wellness Research

**Research Project of the Program**

**Course Code Explanation**

**Two first letters represent the abbreviated name of Faculty offering the course**

MT = Faculty of Medical Technology

**Third and Fouth Letters represent the abbreviated name of responsible departments/centers**

ID = Inter-departmental courses

CH = Department of Clinical Chemistry

MS = Department of Clinical Microscopy

MI = Department of Clinical Microbiology and Applied Technology

CM = Department of Community Medical Technology

3 digits of number are 5XX and 6XX indicate that the courses are in the graduate study level.

## 15. Study Plan

### (1) Plan 1 Research only

| Year | Semester 1 | Semester 2 |
|---|---|---|
| 1 | Qualifying Examination<br>MTID 898 Dissertation 6(0-18-0)<br>**Total 6 credits** | MTID 898 Dissertation 6(0-18-0)<br>**Total 6 credits**<br>Proposal Examination |
| 2 | MTID 898 Dissertation 12(0-36-0)<br>**Total 12 credits** | MTID 898 Dissertation 12(0-36-0)<br>**Total 12 credits** |
| 3 | MTID 898 Dissertation 6(0-18-0)<br>**Total 6 credits** | MTID 898 Dissertation 6(0-18-0)<br>**Total 6 credits**<br>Dissertation examination and graduation |

**Note** Student may register any courses recommended by program committee (without credit)

## Plan 2 Courses work and Research

### Plan 2.1. For students with Master Degree in Medical Technology or other related field

| Year | Semester 1 | Semester 2 |
|---|---|---|
| 1 | MTID 628 Advanced Seminar in Medical Technology 2(2-0-4)<br>MTID 604 Selected Topic in Medical Technology 2(2-0-4)<br>Elective course 2 credits<br>**Total 6 credits** | MTID 620 Research Technology and Innovation Management 2(2-0-4)<br>MTID 626 Advanced Medical Bioinformatics 2(1-2-3)<br>MTID 628 Advanced Seminar in Medical Technology* 2(2-0-4)<br>*continuing course (registration without payment)<br>Elective course 2 credits<br>**Total 6 credits** |
| 2 | MTID 699 Dissertation 9(0-27-0)<br>**Total 9 credits**<br>Qualifying Examination | MTID 699 Dissertation 9(0-27-0)<br>**Total 9 credits**<br>Dissertation Proposal Examination |
| 3 | MTID 699 Dissertation 9(0-27-0)<br>**Total 9 credits** | MTID 699 Dissertation 9(0-27-0)<br>**Total 9 credits**<br>Dissertation Examination and graduation |

### Plan 2.2 For students with Bachelor Degree

| Year | Semester 1 | Semester 2 |
|---|---|---|
| 1 | MTID 601 Clinical Laboratory Administration 2(1-2-3)<br>MTID 605 Research Methodology 2(2-0-4)<br>MTID 618 Clinical Laboratory Science I 2(2-0-4)<br>MTID 621 Molecular Genetics and Personalized Medicine 2(2-0-4)<br>MTID 628 Advanced Seminar in Medical Technology 2(2-0-4)<br>Elective course 2 credits<br>**Total 12 credits** | MTID 620 Research Technology and Innovation Management 2(2-0-4)<br>MTID 622 Biostatistics for Health Science Research 1(1-0-2)<br>MTID 626 Advanced Medical Bioinformatics 2(1-2-3)<br>MTID 628 Advanced Seminar in Medical Technology* 2(2-0-4)<br>*continuing course (registration without payment)<br>Elective course 4 credits<br>**Total 9 credits** |
| summer | Elective course 3 credits **Total 3 credits** | |
| 2 | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits**<br>Qualifying Examination | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits**<br>Dissertation Proposal Examination |
| 3 | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits** | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits** |
| 4 | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits** | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits** |
| 5 | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits** | MTID 799 Dissertation 6(0-18-0)<br>**Total 6 credits**<br>Dissertation Examination and graduation |

## 16. Graduation Requirement

### 3.1 Plan 1 Research only

1) Total time of study should not exceed the study plan
2) Student must complete dissertation (48 credits) and may enroll in courses without credit.
3) Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.

4) Students must "PASS" the qualifying examination following regulations of Faculty of Graduate Studies, Mahidol University.
5) Students must participate and pass the requirement of professional and personal skills development activities according to the announcement of the Faculty of Graduate Studies, Mahidol University.
6) Students must submit dissertation and pass the oral dissertation examination to the committee appointed by the Faculty of Graduate Studies, and receive "PASS". The oral dissertation defense must be opened to the public and all interested individuals.
7) Student's dissertation or part of dissertation must be published or accepted in an international peer-review journal at least 2 original research articles (the student being the first author or corresponding author) complying with the Office of the Higher Education Commission (OHEC) announcement, regulation of Mahidol University B.E. 2563 for post graduate education, and regulation of dissertation publishing for graduation in a Doctoral Degree Program B.E. 2564

### 3.2 Plan 2 Coursework and Research

1) Total time of study should not exceed the study plan.
2) Student must complete all courses and total credit as follows
   **Plan 2.1.** For students with Master Degree in Medical Technology or other related field must complete not less than 12 credits for courseworks and 36 credits for dissertation (Total not less than 48 credits)
   **Plan 2.2** For students with Bachelor Degree must complete not less than 24 credits for courseworks and 48 credits for dissertation (Total not less than 72 credits)
3) Students must have a minimum CUM-GPA of 3.50.
4) Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.
5) Students must "PASS" the qualifying examination following regulations of the Faculty of Graduate Studies, Mahidol University.
6) Students must participate and pass the requirement of professional and personal skills development activities according to the announcement of the Faculty of Graduate Studies, Mahidol University.
7) Students must submit dissertation and pass the oral dissertation examination to the committee appointed by the Faculty of Graduate Studies, and receive "PASS". The oral dissertation defense must be opened to the public and all interested individuals.
8) Student's dissertation or part of dissertation must be published or accepted in an international peer-review journal at least 1 original research articles (the student being the first author or corresponding author) complying with the Office of the Higher Education Commission (OHEC) announcement, regulation of Mahidol University B.E. 2563 for post graduate education, and regulation of dissertation publishing for graduation in a Doctoral Degree Program B.E. 2564

| English Proficiency Test (Graduation requirement) | Score |
|---|---|
| IELTS | 6.0 (W=6, S=6) |
| TOEFL (iBT) | 79 (W=23, S=19) |
| MU GRAD Plus (MU Grad Test + Speaking) | 90 (W=12, S=12) |

*W=WRITING, S= SPEAKING

## 17. Faculty in Charge of the Program

| No. | Academic position - Name – Surname | E-mail address | Department |
|---|---|---|---|
| 1. | Assistant Professor Dr. Chaniya Leepiyasakulchai (Program director) | chaniya.lee@mahidol.ac.th | Department of Clinical Microbiology and Applied Technology, Faculty of Medical Technology, Mahidol University |
| 2. | Assistant Professor Dr. Sumana Dakeng | sumana.dak@mahidol.ac.th | Department of Clinical Microscopy, Faculty of Medical Technology, Mahidol University |
| 3. | Assistant Professor Dr. Sirirat Luk-in (Secretary of the program) | sirirat.luk@mahidol.ac.th | Department of Clinical Microbiology and Applied Technology, Faculty of Medical Technology, Mahidol University |

# GRADUATE STUDIES PROGRAMS & STUDY PLANS

## MASTER OF SCIENCE PROGRAM

### in Medical Technology (International Program)

## M.Sc. program in Medical Technology (International Program)
## Latest revised in 2022
## For academic Year 2024 enrollment

**1. Program Title** Master of Science Program in Medical Technology (International Program)

**2. Name of Degree**

In Thai :-

ชื่อเต็ม : วิทยาศาสตรมหาบัณฑิต (เทคนิคการแพทย์)

ชื่อย่อ : วท.ม. (เทคนิคการแพทย์)

In English :-

Full name : Master of Science (Medical Technology)

Abbreviation : M.Sc. (Medical Technology)

**3. Responsible unit**

3.1 Faculty of Medical Technology, Mahidol University

3.2 Faculty of Graduate Studies, Mahidol University

**4. Philosophy**

The Master of Science in Medical Technology program is designed in compliance with National Plan of Development for Higher Education, Philosophy of Higher Education, Philosophy of Mahidol University and the world current situation concerning disruptive technology and innovation. The program will prepare students to be capable of upgrading the academic development and new technology in the field of medical technology, medical sciences or other related fields. Students will be equipped with intensive professional knowledge and skills, in order to solve public health problems and to improve quality of life of the people. In addition, students will be able to carry out research works in order to develop better clinical laboratory services, enhance the understanding of diseases, and improve medical diagnosis and treatment of diseases.

## 5. Distinctive features of the program

The Master degree in Medical Technology is designed to produce highly competent scholars and professionals capable of upgrading the academic development and new technology in the field of medical technology and other health-related fields in order to find solutions for the public health problems of the country and to improve the quality of life of the people. In addition, graduates will promote study and research work in order to develop better clinical laboratory services. The faculty has a broad spectrum of expertise and provides training opportunities in a wide range of disciplines.These include hematology, clinical microbiology, virology, immunology, clinical biochemistry, host-parasite interactions, and free radicals in biology, regulation of gene expression and genetic study, molecular biology, medical laboratory equipment and imaging technology.

## 6. Expected program learning outcomes (PLOs)

By the end of the program, student will be expected to achieve the indicated PLOs through variety of learning method and assessed both during the learning process and final thesis defensive examination. The award of M.Sc. is based on the evidence of students demonstrate the achievement of the expected learning outcomes (PLOs) as follows;

| PLOs | The graduates of the program will be able to: |
|---|---|
| 1 | Possess moral standards and ethics in academic, research, and medical technology profession |
| 2 | Integrate knowledge in medical technology profession and related fields to approach problem solving and improve work quality |
| 3 | Conduct research to solve problem and improve work quality in medical technology |
| 4 | Demonstrate teamwork and interpersonal skills |
| 5 | Demonstrate effective communication skills in academic and research to exchange and share knowledge to public in both national and international levels |
| 6 | Demonstrate effective information technology and data analytics in health sciences research |

7. Language of study and assessment: **English**

8. Student Enrollment: **Both Thai and international students**

## 9. Admission requirement:

The requirements admission of each study plan are as follow.

**Plan A1 (Research only).** A student must

1) Hold a Bachelor's degree in Medical Technology, Health Science or other related disciplines from academic institute accredited by the Office of the Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation
2) Have cumulative GPA not less than 3.25
3) Have an English Proficiency Examination score as the requirement of the Faculty of Graduate Studies
4) Have at least 1 year working experience in medical technology or other related fields
5) Have at least 1 original research publication or academic work in the field of medical technology or other related fields with peer reviewed national or international journal
6) A student who does not meet qualification criteria no. 2-5 could apply to the program if the permission is granted by the Administrative Program Committee in concurrence with the Dean of the Faculty of Graduate Studies, Mahidol University

**Plan A2 Applicant (Coursework and Research) A student must**

1) Hold a Bachelor's degree in Medical Technology, Health Science or other related discipline from academic institute accredited by the Office of the Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation
2) Have cumulative GPA not less than 2.50
3) Have an English Proficiency Examination score as the requirement by the Faculty of Graduate Studies
4) A student who does not meet qualification criteria no.2-3 could apply to the program if the permission is granted by the Administrative Program Committee in concurrence with the Dean of the Faculty of Graduate Studies, Mahidol University

## 10. English language requirement

All students are required to present evidence of English Proficiency, **"My Best Scores",** by completing one of the following tests:

**English Proficiency Test (Entrance requirement)**

TOEFL (iBT)

MU GRAD Test

MU GRAD Plus (MU Grad Test + Speaking)

## 11. Study calendar

Each academic year is divided into two semesters.

Semester 1 : August - November

Semester 2 : January - May

Summer Semester : May – July (to be announced)

## 12. Curriculum structure

### Plan A1 Research only

| Course Category | Credits | |
|---|---|---|
| | Plan A1 Research only | Plan A2 Course work and Research |
| 1. Required courses | Non or audit | 13 |
| 2. Elective courses | Non or audit | 11 |
| 3. Thesis | 36 | 12 |
| Total credits (not less than) | 36 | 36 |

## 13. Courses in the curriculum

### Plan A1 (Research only)

| | | | Credits (Lecture-Practice-Self-study) |
|---|---|---|---|
| MTID | 798 | Thesis | 36(0-108-0) |
| ทนคร | 798 | วิทยานิพนธ์ | |

Note: Students may register any courses recommended by program committee (without credit)

### Plan A2 (Course work and Research)

#### 1) Required Courses (13 credits)

| | | | Credits (Lecture-Practice-Self-study) |
|---|---|---|---|
| MTID | 601 | Clinical Laboratory Administration | 2(1-2-3) |
| ทนคร | 601 | การบริหารห้องปฏิบัติการทางคลินิก | |
| MTID | 605 | Research Methodology | 2(2-0-4) |
| ทนคร | 605 | วิทยาระเบียบวิธีวิจัย | |
| MTID | 618 | Clinical Laboratory Science I | 2(2-0-4) |
| ทนคร | 618 | วิทยาการห้องปฏิบัติการทางคลินิก ๑ | |
| MTID | 621 | Molecular Genetics and Personalized Medicine | 2(2-0-4) |
| ทนคร | 621 | พันธุศาสตร์ระดับโมเลกุลและการแพทย์จำเพาะบุคคล | |
| MTID | 622 | Biostatistics for Health Science Research | 1(1-0-2) |
| ทนคร | 622 | ชีวสถิติสำหรับการวิจัยวิทยาศาสตร์สุขภาพ | |
| MTID | 627 | Seminar in Medical Technology | 2(2-0-4) |
| ทนคร | 627 | สัมมนาทางเทคนิคการแพทย์ | |
| MTID | 629 | Modern Medical Technology | 2(2-0-4) |
| ทนคร | 629 | เทคนิคการแพทย์สมัยใหม่ | |

#### 2) Elective Courses (11 credits)

| | | | |
|---|---|---|---|
| MTID | 506 | Design and Construction of Basic Clinical Laboratory Instrument | 3(1-4-4) |
| ทนคร | 506 | การออกแบบและสร้างเครื่องมือสำหรับห้องปฏิบัติการคลินิกขั้นพื้นฐาน | |
| MTCH | 611 | Medical Molecular Genetics | 2(2-0-4) |
| ทนคค | 611 | พันธุศาสตร์ระดับโมเลกุลทางการแพทย์ | |
| MTCH | 612 | Selected Topics in Clinical Chemistry | 1(1-0-2) |
| ทนคค | 612 | หัวข้อเลือกสรรทางเคมีคลินิก | |
| MTCH | 614 | Clinical Performance Evaluation of Diagnostic Test | 2(1-2-3) |
| ทนคค | 614 | การประเมินประสิทธิภาพทางคลินิกของการทดสอบวินิจฉัย | |
| MTMS | 605 | Blood Bank Techniques and Immunohematology | 2(1-2-3) |
| ทนคม | 605 | เทคนิคทางธนาคารเลือดและวิทยาภูมิคุ้มกันโลหิตวิทยา | |

| | | |
|---|---|---|
| MTMI 610 | Selected Topics in Molecular Microbiology | 1(1-0-2) |
| ทนจค 610 | หัวข้อเลือกสรรทางจุลชีววิทยาระดับโมเลกุล | |
| MTMI 611 | Cells and Tissue Culture Techniques | 1(0-2-1) |
| ทนจค 611 | เทคนิคการเพาะเลี้ยงเซลล์และเนื้อเยื่อ | |
| MTMI 618 | Technology Trends in Clinical Microbiology | 2(1-2-3) |
| ทนจค 618 | แนวโน้มเทคโนโลยีทางจุลชีววิทยาคลินิก | |
| MTCM 601 | Population Health and Community Medical Technology | 2(1-2-3) |
| ทนทช 601 | สุขภาพประชากร และเทคนิคการแพทย์ชุมชน | |

In addition to elective courses mentioned above, a student may register other courses in international programs offered by Mahidol University or the ones offered by other universities according to the student's interest with the approval of the advisor and the program committee.

### 3) Thesis

| | | |
|---|---|---|
| MTID 698 | Thesis | 12(0-36-0) |
| ทนคร 698 | วิทยานิพนธ์ | |

## Research Project of the Program

Guidelines for conducting a research project are as follows:

1. Engineering of Biological and Chemical Polymers for Applications
2. Data Mining and Biomedical Informatics
3. Detection Tools and Analytical Process Development
4. Bioactive Compounds for Medical Applications
5. Infectious Diseases and Antibiotic Resistant Microorganisms
6. Molecular Genetics of Human Diseases and Cancer
7. Stem Cell Research in Life Science
8. Biosensor for Diagnostic and Medical Applications
9. Medical Imaging and Pattern Recognition Analysis
10. Molecular Informatics for Rational Design and Simulation of Biological and Chemical Entities
11. Food Safety and Environmental Pollution
12. Viruses and Neurodegeneration Research
13. Medical Laboratory Quality Management
14. Medical Laboratory Control Materials Development
15. Aging and Non-Communicable Disease
16. Integrative Holistic Health and Wellness Research

### Course Code Explanation

**Two first letters represent the abbreviated name of Faculty**

MT = Faculty of Medical Technology

**Third and Fouth Letters represent the abbreviated name of responsible departments/centers**

ID = Inter-departmental courses

CH = Department of Clinical Chemistry

MS = Department of Clinical Microscopy

MI = Department of Clinical Microbiology and Applied Technology

CM = Department of Community Medical Technology

Number in 3 digits (i.e. 5XX, 6XX, and 7XX) show graduate course code.

## 15. Study Plan

### Plan A1 (Research only)

| Year | Semester 1 | Semester 2 |
|---|---|---|
| Year 1 | MTID 798 Thesis 9(0-27-0)<br>**Total 9 credits**<br>Thesis Proposal Examination | MTID 798 Thesis 9(0-27-0)<br>**Total 9 credits** |
| 2 | MTID 798 Thesis 9(0-27-0)<br>**Total 9 credits** | MTID 798 Thesis 9(0-27-0)<br>**Total 9 credits**<br>Thesis Examination and graduation |

*Students may register any courses recommended by program committee (without credit)

### Plan A2 (Course work and Research)

| Year | Semester 1 | Semester 2 |
|---|---|---|
| Year 1 | MTID 601 Clinical Laboratory Administration 2(1-2-3)<br>MTID 605 Research Methodology 2(2-0-4)<br>MTID 618 Clinical Laboratory Science I 2(2-0-4)<br>MTID 621 Molecular Genetics and Personalized Medicine 2(2-0-4)<br>MTID 627 Seminar in Medical Technology 2(2-0-4)<br>Elective course 2 credits<br>**Total 12 credits** | MTID 622 Biostatistics for Health Science Research 1(1-0-2)<br>MTID 629 Modern Medical Technology 2(2-0-4)<br>MTID 627 Seminar in Medical * Technology 2(2-0-4)<br>*continuing course (registration without payment)<br>MTID 698 Thesis 4(0-12-0)<br>Elective course 7 credits<br>**Total 14 credits**<br>Thesis Proposal Examination |
| | **Summer Semester**<br>Elective course 2 credits<br>**Total 12 credits** | |
| **Year** | **Semester 1** | **Semester 2** |
| 2 | MTID 698 Thesis 4(0-12-0)<br>**Total 4 credits** | MTID 698 Thesis 4(0-12-0)<br>**Total 4 credits**<br>Thesis Examination and graduation |

## 16. Graduation Requirement

### Plan A1 (Research only)

1) Total time of study should not exceed the study plan.
2) Student must complete thesis (36 credits) and may enroll in courses without credit.
3) Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.
4) Students must participate and pass the requirement of professional and personal skills development activities according to the announcement of the Faculty of Graduate Studies, Mahidol University.
5) Students must submit thesis and pass the oral thesis examination to the committee appointed by the Faculty of Graduate Studies with the result “Passed”. The oral thesis defense must be opened to the public and all interested individuals.

6) Student's thesis or part of thesis must be published or accepted in an international peer-review journal at least 1 original research articles (the student being the first author or corresponding author) complying with the Office of the Higher Education Commission (OHEC) announcement, regulation of Mahidol University B.E. 2563 for post graduate education.

### Plan A2 (Course work and Research)

1) Total time of study should not exceed the study plan.
2) Student must complete all courses and total credit as follows; student must complete not less than 24 credits for courseworks, 12 credits for thesis (Total not less than 36 credits) with a minimum CUM-GPA of 3.00.
3) Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.
4) Students must participate and pass the requirement of professional and personal skills development activities according to the announcement of the Faculty of Graduate Studies, Mahidol University.
5) Students must submit thesis and pass the oral thesis examination to the committee appointed by the Faculty of Graduate Studies with the result "Passed". The oral thesis defense is open to the public and all interested individuals.
6) Student's thesis or part of thesis must be published or accepted in an international peer-review journal at least 1 original research articles or presented in an academic conference which has a peer review and proceedings complying with the Office of the Higher Education Commission (OHEC) announcement, regulation of Mahidol University B.E. 2563 for post graduate education.

| **English Proficiency Test (Graduation requirement)** | **Score** |
|---|---|
| IELTS | 5.0 (W=5, S=5) |
| TOEFL (iBT) | 64 (W=17, S=15) |
| MU GRAD Plus (MU Grad Test + Speaking) | 70 (W=10, S=10) |
| MU ELT | 84 (W=10, S=10) |

*W=WRITING, S= SPEAKING

## 17. Faculty in Charge of the Program

| No. | Academic position - Name – Surname | E-mail address | Department |
|---|---|---|---|
| 1. | Assoc. Prof. Dr. Sakda Yainoy<br>(Program director) | sakda.yai@mahidol.ac.th | Department of Clinical Microbiology and Applied Technology, Faculty of Medical Technology, Mahidol University |
| 2. | Assistant Professor Dr. Tienrat Tangchakeeree | tienrat.tan@mahidol.ac.th | Center for Research and Innovation, Faculty of Medical Technology, Mahidol University Mahidol University |
| 3. | Asst. Prof. Dr.Veda Prachayasittikul<br>(Secretary of the program) | veda.pra@mahidol.ac.th | Center for Research and Innovation, Faculty of Medical Technology, Mahidol University |

# ACADEMIC CALENDAR

# Academic Calendar

## Course Registration and Fee Payment for Graduate Students, Academic Year 2024
## Faculty of Graduate Studies, Mahidol University

| | Registration Process | 1st Semester | 2nd Semester | Summer |
|---|---|---|---|---|
| 1 | Semester start and end dates | Aug 5 - Nov 29, 2024 | Jan 6 - May 2, 2025 | May 26 - Jul 18, 2025 |
| 2 | Consultations with advisors for course registration approval (Regarding course registrations deviating from study plans, a request must be approved prior to registration) | From Jun 17, 2024 | From Nov 18, 2024 | From Apr 21, 2025 |
| 3 | Registration period via Student Service System on https://graduate.mahidol.ac.th and registration fee payment<br>3.1 Regular registration | Jul 1 - Jul 12, 2024 | Dec 2 - Dec 13, 2024 | May 5 - May 9, 2025 |
| | 3.2 Last day of payment for tuition fees during the regular registration period<br>(If the payment is made after this deadline, the students will be charged 2,000 baht for late registration.) | Aug 2, 2024<br>(before 10:00 p.m.) | Jan 3, 2025<br>(before 10:00 p.m.) | May 23, 2025<br>(before 10:00 p.m.) |
| | 3.3 Late registration (The students will be charged for 2,000 baht) | Aug 5 - Aug 16, 2024 | Jan 6 - Jan 17, 2025 | May 26 - May 30, 2025 |
| | 3.4 Add/Drop course registration (Tuition fee refund for course dropping excluding student ID 67 who paid tuition fees in a lump sum cannot refund) | | | |
| | 3.5 Submission of credit refund request form for the dropped course(s) (during Add/Drop registration period)<br>Remarks: The refund request must be proceeded within the specified period. All requests submitted after the specified period will not be considered. | Aug 5 - Aug 30, 2024 | Jan 6 - Jan 31, 2025 | May 26 - Jun 13, 2025 |
| | 3.6 Last day of payment for tuition fees and fines for late registration<br>(The students will be charged for 2,000 baht) | Aug 30, 2024<br>(before 10:00 p.m.) | Jan 31, 2025<br>(before 10:00 p.m.) | Jun 13, 2025<br>(before 10:00 p.m.) |
| | 3.7 Course withdrawal (No refund) | Aug 17 - Nov 22, 2024 | Jan 18 - Apr 25, 2025 | May 31 - Jul 11, 2025 |
| 4 | Advisor or program director's approval notice toward the registration results | Within 5 days after receiving student registration request | | |
| 5 | Invoice and course list will be informed via e-mail to each student. The students can download and print out the invoice for payment to be proceeded at bank counters or through electronic channels. | | | |
| | 5.1 Regular Registration<br>5.2 Late Registration<br>5.3 Add/Drop Course Registration | 12 days after student registration request | | |
| 6 | Announcement of student enrollment's list and payment status on https://graduate.mahidol.ac.th (Student Service System) | From Jul 15, 2024 | From Dec 16, 2024 | From May 12, 2025 |
| 7 | The Faculty of Graduate Studies submits the list of students who do not register for courses or register without the tuition fee payment for student status suspension. | Sep 30, 2024 | Mar 3, 2025 | – |
| 8 | Course evaluation | Nov 11 - Dec 16, 2024 | Apr 14 - May 19, 2025 | Jun 30 - Jul 28, 2025 |
| 9 | Submission of course evaluation summary for the semester to FGS | Within Dec 20, 2024 | Within May 23, 2025 | Within Jul 25, 2025 |
| 10 | Grade Report announcement on https://graduate.mahidol.ac.th<br>(Student Service System) | From Dec 21, 2024 | From May 24, 2025 | From Jul 26, 2025 |

# Academic Calendar

## Course Registration and Fee Payment for Graduate Students, Academic Year 2024
## Faculty of Graduate Studies, Mahidol University

**Conditions for student who will not need to do Course Registration and Payment of Tuition Fees**
**Academic Year 2024**

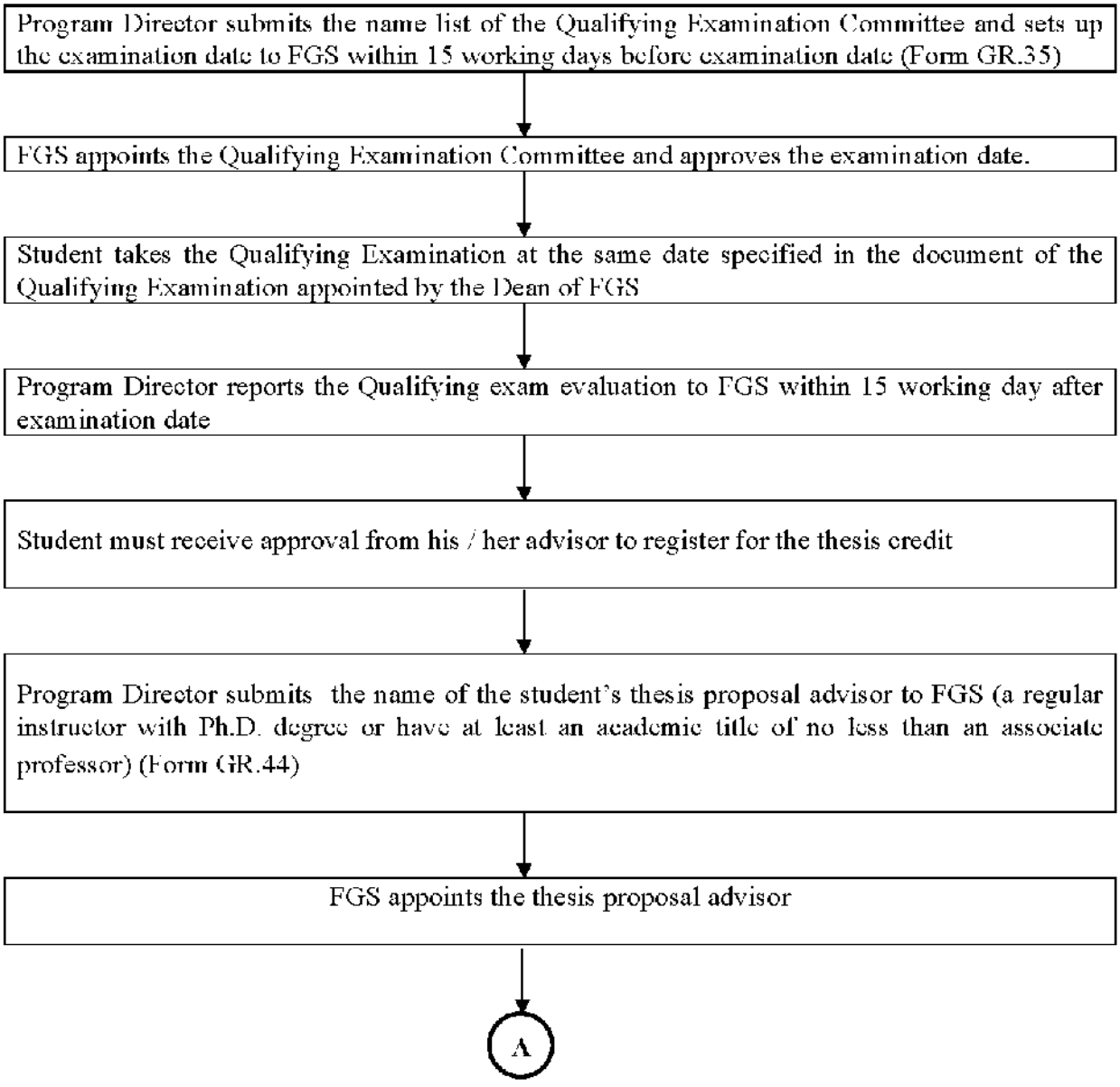
| Conditions for Student | Deadline | | |
|---|---|---|---|
| | Semester 1/2024 | Semester 2/2024 | Summer 2024 |
| **Students <u>under</u> the duration of study plan (or the maximum study duration of curriculum)** | | | |
| 1. Students of Graduate Diploma / Higher Graduate Diploma Programs must complete all required coursework according to curriculum structure with a minimum GPA of 3.00 and "pass" English proficiency requirement | August 2, 2024 | January 3, 2025 | -- |
| 2. Students of Master's / Doctoral Programs must "pass" Thesis/Thematic paper defense examination | August 2, 2024 | January 3, 2025 | -- |
| **Students <u>exceeding</u> the duration of study plan (or the maximum study duration of curriculum)** | | | |
| 1. Students of Graduate Diploma / Higher Graduate Diploma Programs must complete all required coursework according to curriculum structure with a minimum GPA of 3.00 and "pass" English proficiency requirement | July 19, 2024 | November 29, 2024 | May 2, 2025 |
| 2. Students of Master's / Doctoral Programs must "pass" Thesis/Thematic paper defense examination | July 19, 2024 | November 29, 2024 | May 2, 2025 |

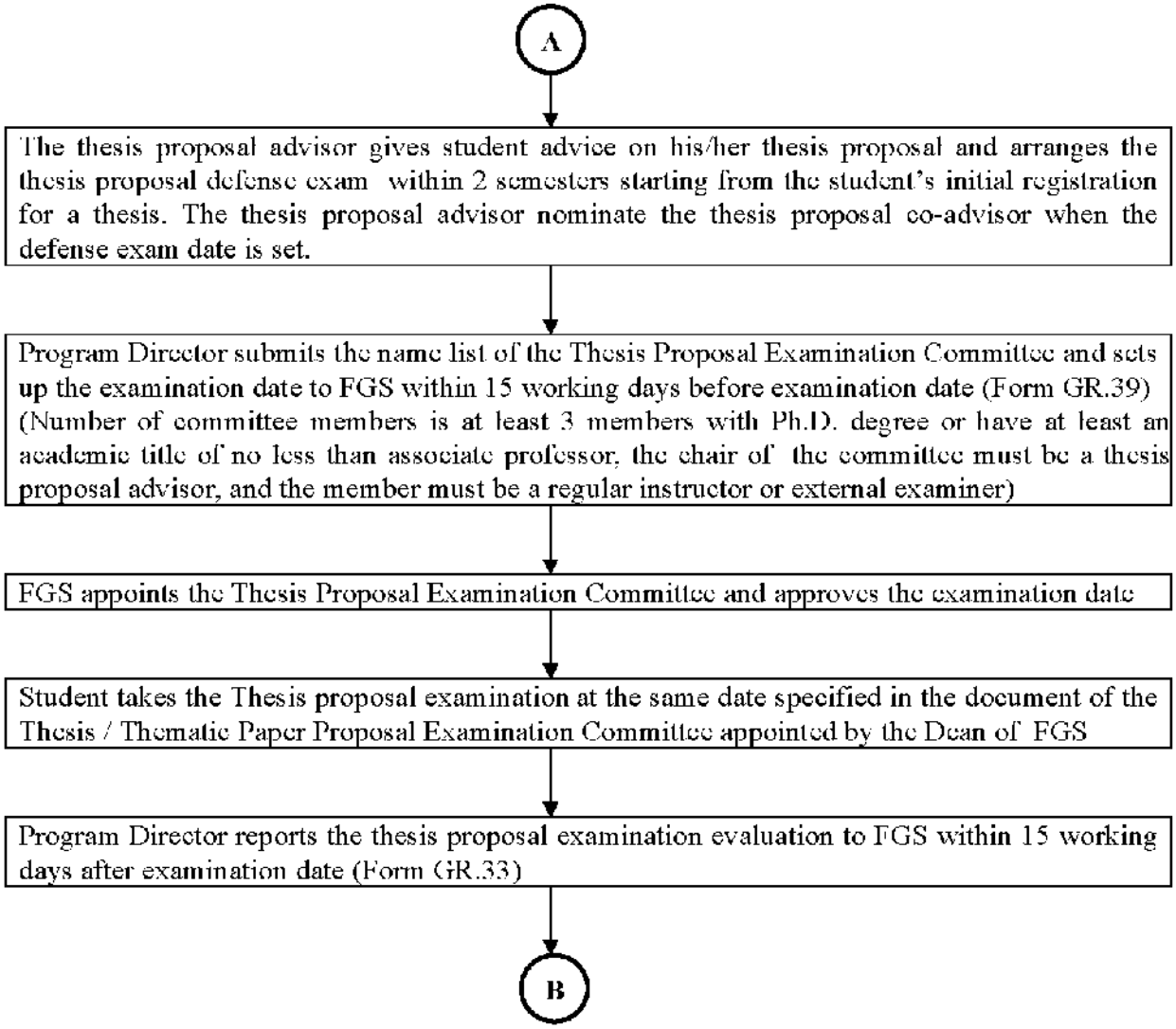
# STEP FOR THESIS PROCESS

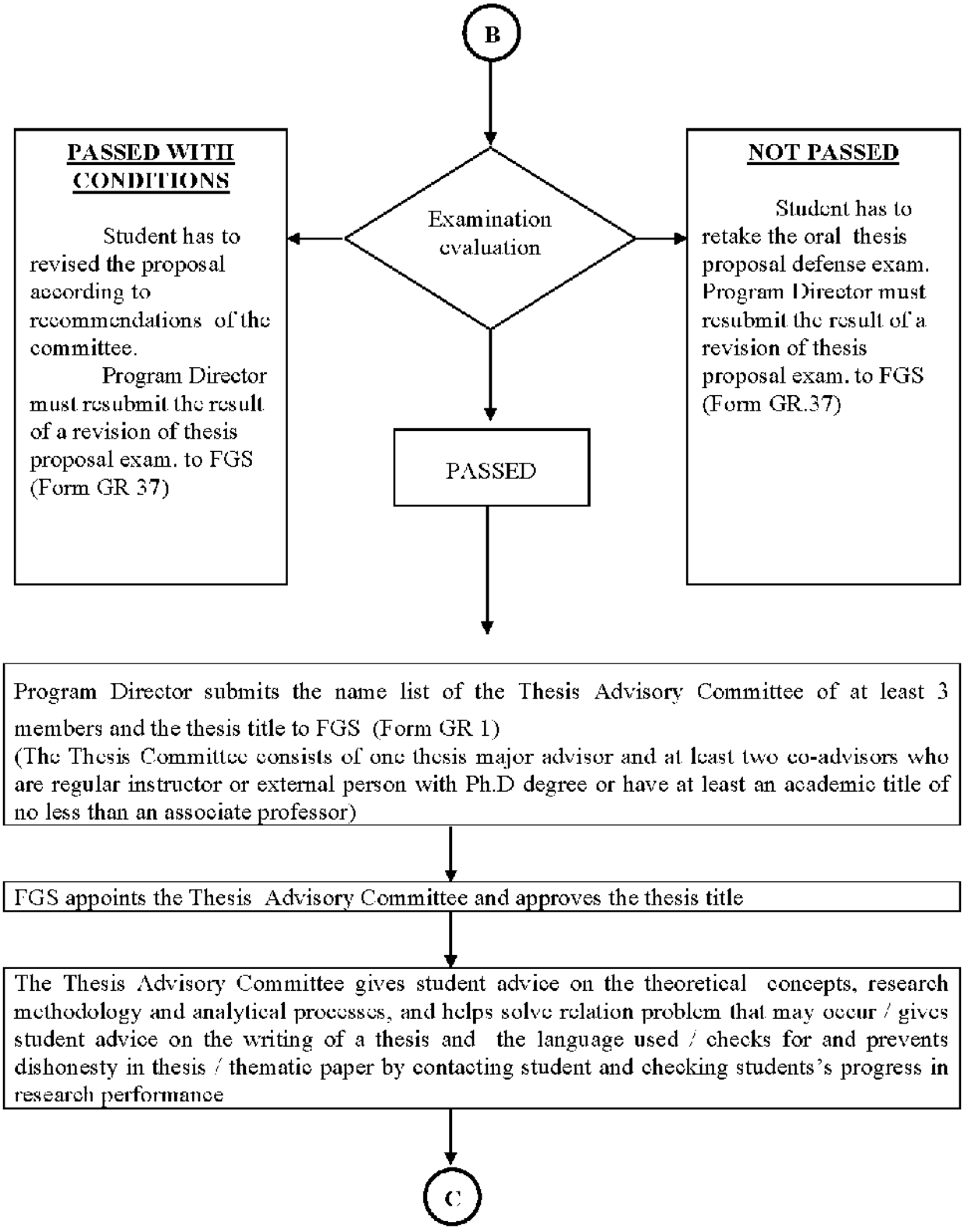
## DOCTOR OF PHILOSOPHY PROGRAM

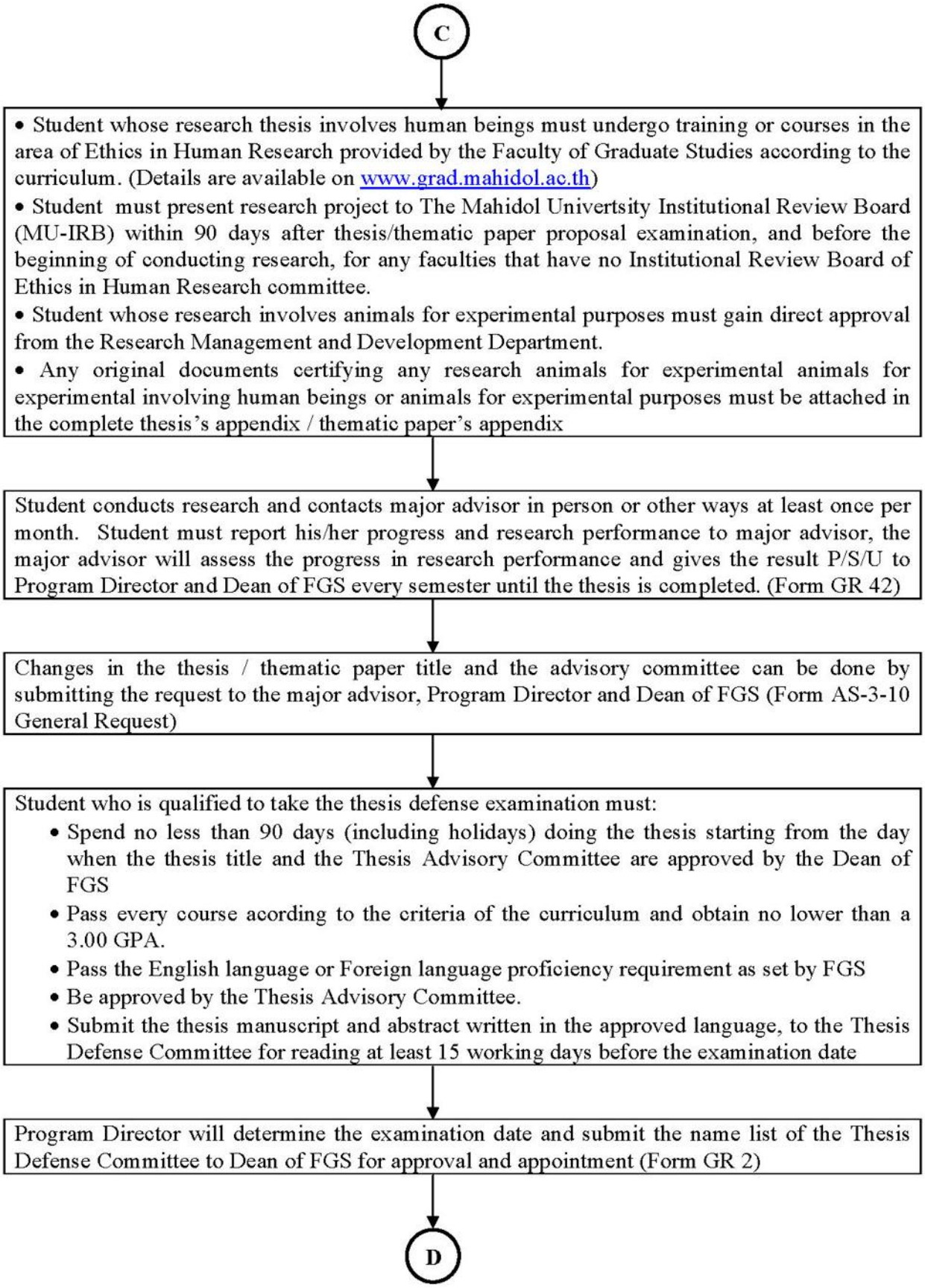
## in Medical Technology (International Program)

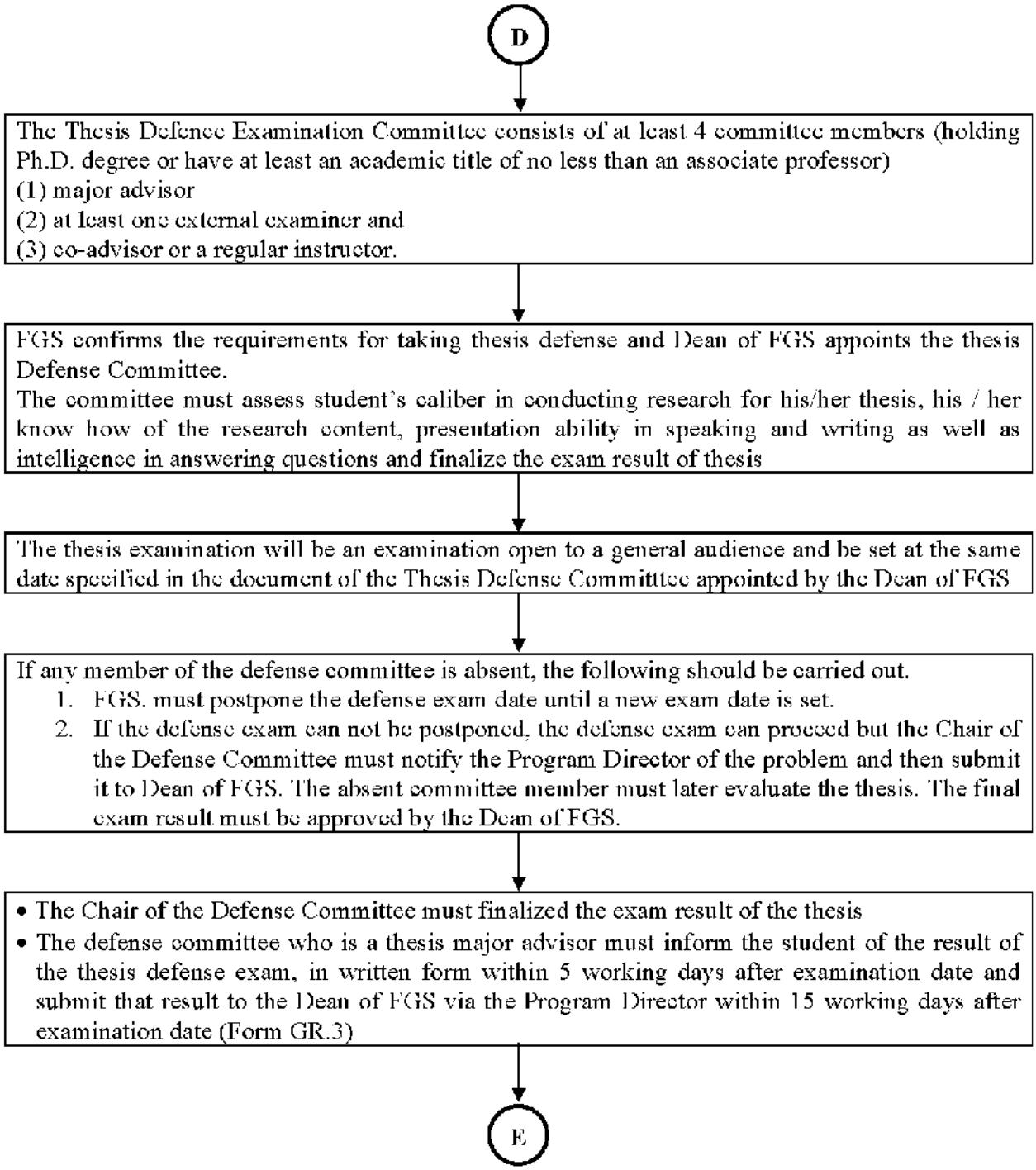
# Steps for Thesis process
# (Doctoral Degree Program)

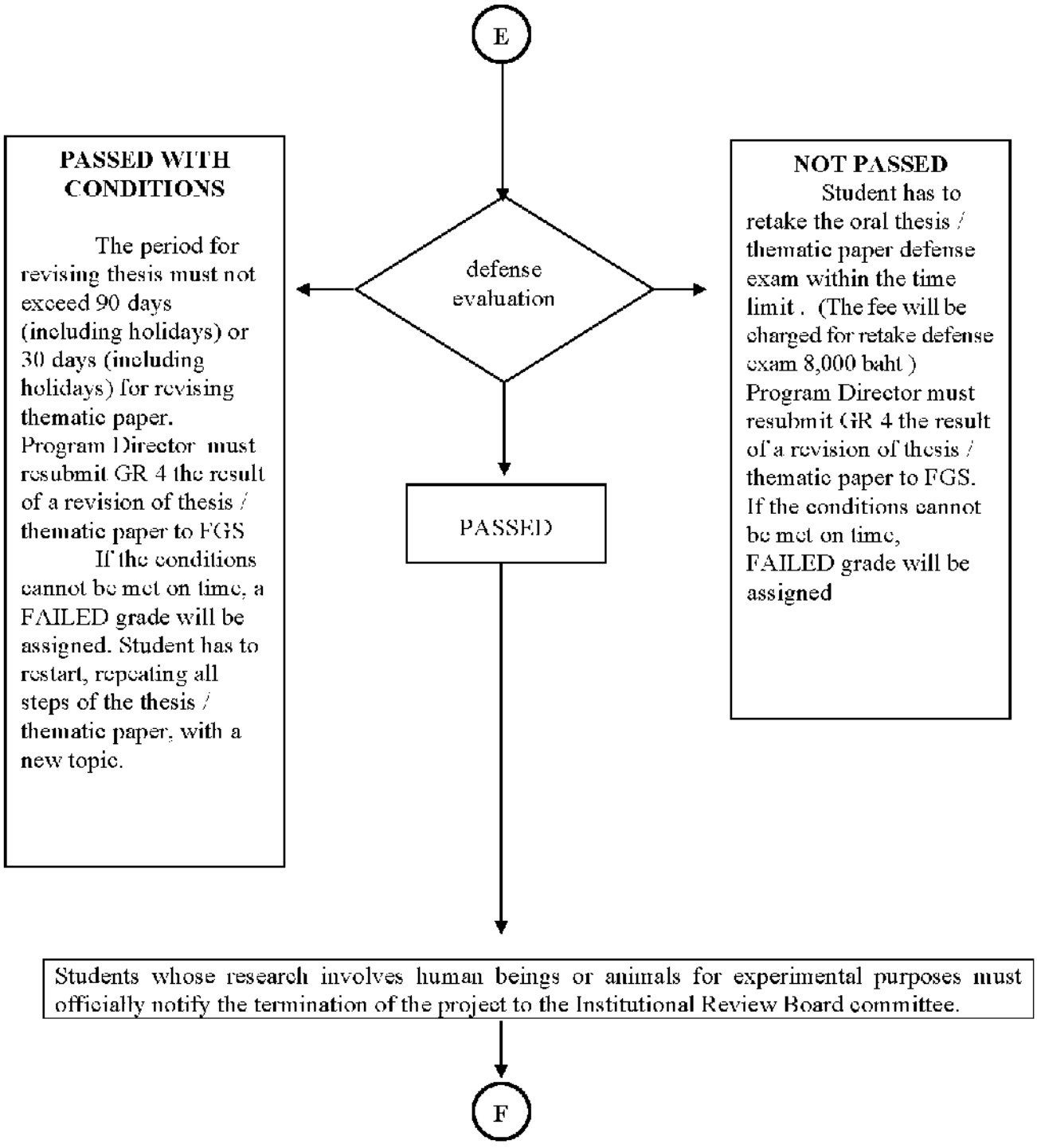



A
The thesis proposal advisor gives student advice on his/her thesis proposal and arranges the thesis proposal defense exam within 2 semesters starting from the student's initial registration for a thesis. The thesis proposal advisor nominate the thesis proposal co-advisor when the defense exam date is set.
Program Director submits the name list of the Thesis Proposal Examination Committee and sets up the examination date to FGS within 15 working days before examination date (Form GR.39) (Number of committee members is at least 3 members with Ph.D. degree or have at least an academic title of no less than associate professor, the chair of the committee must be a thesis proposal advisor, and the member must be a regular instructor or external examiner)
FGS appoints the Thesis Proposal Examination Committee and approves the examination date
Student takes the Thesis proposal examination at the same date specified in the document of the Thesis / Thematic Paper Proposal Examination Committee appointed by the Dean of FGS
Program Director reports the thesis proposal examination evaluation to FGS within 15 working days after examination date (Form GR.33)
B


B
PASSED WITH CONDITIONS
Student has to revised the proposal according to recommendations of the committee.
Program Director must resubmit the result of a revision of thesis proposal exam. to FGS (Form GR 37)
Examination evaluation
NOT PASSED
Student has to retake the oral thesis proposal defense exam. Program Director must resubmit the result of a revision of thesis proposal exam. to FGS (Form GR.37)
PASSED
Program Director submits the name list of the Thesis Advisory Committee of at least 3 members and the thesis title to FGS (Form GR 1)
(The Thesis Committee consists of one thesis major advisor and at least two co-advisors who are regular instructor or external person with Ph.D degree or have at least an academic title of no less than an associate professor)
FGS appoints the Thesis Advisory Committee and approves the thesis title
The Thesis Advisory Committee gives student advice on the theoretical concepts, research methodology and analytical processes, and helps solve relation problem that may occur / gives student advice on the writing of a thesis and the language used / checks for and prevents dishonesty in thesis / thematic paper by contacting student and checking students's progress in research performance
C


C
• Student whose research thesis involves human beings must undergo training or courses in the area of Ethics in Human Research provided by the Faculty of Graduate Studies according to the curriculum. (Details are available on www.grad.mahidol.ac.th)
• Student must present research project to The Mahidol Univertsity Institutional Review Board (MU-IRB) within 90 days after thesis/thematic paper proposal examination, and before the beginning of conducting research, for any faculties that have no Institutional Review Board of Ethics in Human Research committee.
• Student whose research involves animals for experimental purposes must gain direct approval from the Research Management and Development Department.
• Any original documents certifying any research animals for experimental animals for experimental involving human beings or animals for experimental purposes must be attached in the complete thesis's appendix / thematic paper's appendix
Student conducts research and contacts major advisor in person or other ways at least once per month. Student must report his/her progress and research performance to major advisor, the major advisor will assess the progress in research performance and gives the result P/S/U to Program Director and Dean of FGS every semester until the thesis is completed. (Form GR 42)
Changes in the thesis / thematic paper title and the advisory committee can be done by submitting the request to the major advisor, Program Director and Dean of FGS (Form AS-3-10 General Request)
Student who is qualified to take the thesis defense examination must:
• Spend no less than 90 days (including holidays) doing the thesis starting from the day when the thesis title and the Thesis Advisory Committee are approved by the Dean of FGS
• Pass every course acording to the criteria of the curriculum and obtain no lower than a 3.00 GPA.
• Pass the English language or Foreign language proficiency requirement as set by FGS
• Be approved by the Thesis Advisory Committee.
• Submit the thesis manuscript and abstract written in the approved language, to the Thesis Defense Committee for reading at least 15 working days before the examination date
Program Director will determine the examination date and submit the name list of the Thesis Defense Committee to Dean of FGS for approval and appointment (Form GR 2)
D


D
The Thesis Defence Examination Committee consists of at least 4 committee members (holding Ph.D. degree or have at least an academic title of no less than an associate professor)
(1) major advisor
(2) at least one external examiner and
(3) co-advisor or a regular instructor.
FGS confirms the requirements for taking thesis defense and Dean of FGS appoints the thesis Defense Committee.
The committee must assess student's caliber in conducting research for his/her thesis, his / her know how of the research content, presentation ability in speaking and writing as well as intelligence in answering questions and finalize the exam result of thesis
The thesis examination will be an examination open to a general audience and be set at the same date specified in the document of the Thesis Defense Committee appointed by the Dean of FGS
If any member of the defense committee is absent, the following should be carried out.
1. FGS. must postpone the defense exam date until a new exam date is set.
2. If the defense exam can not be postponed, the defense exam can proceed but the Chair of the Defense Committee must notify the Program Director of the problem and then submit it to Dean of FGS. The absent committee member must later evaluate the thesis. The final exam result must be approved by the Dean of FGS.
• The Chair of the Defense Committee must finalized the exam result of the thesis
• The defense committee who is a thesis major advisor must inform the student of the result of the thesis defense exam, in written form within 5 working days after examination date and submit that result to the Dean of FGS via the Program Director within 15 working days after examination date (Form GR.3)
E


E
defense evaluation
PASSED WITH CONDITIONS
The period for revising thesis must not exceed 90 days (including holidays) or 30 days (including holidays) for revising thematic paper.
Program Director must resubmit GR 4 the result of a revision of thesis / thematic paper to FGS
If the conditions cannot be met on time, a FAILED grade will be assigned. Student has to restart, repeating all steps of the thesis / thematic paper, with a new topic.
NOT PASSED
Student has to retake the oral thesis / thematic paper defense exam within the time limit . (The fee will be charged for retake defense exam 8,000 baht )
Program Director must resubmit GR 4 the result of a revision of thesis / thematic paper to FGS.
If the conditions cannot be met on time, FAILED grade will be assigned
PASSED
Students whose research involves human beings or animals for experimental purposes must officially notify the termination of the project to the Institutional Review Board committee.
F

The process of preparing the original copy of thesis and request for thesis checking format service.

1. Student must prepare the original copy of thesis in the format required by FGS.
2. Student should submit the Cover Page, Entitled Page, Approval Page and Abstract Page to the staff of Academic Services Section, FGS, Salaya Campus to have those checked before the defense examination date. This provides student to be able to bring Entitled Page and Approval Page to the Thesis Advisory Committee and The Thesis Defense Examination Committee to sign after passing the defense exam. (result : PASSED)
3. After passing the defense exam. Student should bring the original copy of thesis (hard copy and electronic file) to the staff of Academic Services Section, FGS. to have the thesis format checked. Allow at least two working days for service.
4. As for the English Thesis Abstract, student should have the Language Center Staff (at the 2nd floor of Graduate Studies Building, Salaya Campus) checked for the English Grammar, the English Thesis Abstract should be in a double space format.

After having the English Thesis Abstract checked by the Language Center Staff, and having corrected, student should submit the final version of the abstract together with Entitled Page and Approval Page to the Dean of FGS to sign. The Dean of FGS will be the last person to sign after other committee members, Program Director and Dean of Faculty where the program held have signed.



- Student must submit the complete thesis (one original and one copy) plus CD in word file and PDF file to the FGS within 21 days (including holidays) of passing the defense exam with "passed" result. A fee will be charged for late submission 200 bath / working day. The "delayed submission" can not last more than 90 days (including holidays) after the "PASSED" result.
- Cancellation of thesis examination result if the delayed submission of the complete thesis and CD has not been received by the FGS within 90 days (including holidays) after the "passed" result, the FGS will cancel the thesis or thematic paper examination result. If the student still wants to receive the degree, the student must register and start the entire processes of the thesis or thematic paper again.



Student must submit the evidence for Thesis Publishing for Graduation.
(Published documents or letter of acceptance from International Peer-reviewed academic Journal



Program Director must submit the request for student's graduation to FGS (Form GR 5)



FGS gives consideration regarding referrals to the Mahidol University Council for authorization of degree



Student is awarded the degree and then she/he can get certificate of Graduation and Transcript

# STEP FOR THESIS PROCESS

## MASTER OF SCIENCE PROGRAM

## in Medical Technology (International Program)

# Steps for Thesis / Thematic Paper Process (Master' s Degree Program)

Student must receive approval from his / her advisor to register for the thesis credit

↓

Program Director submits the name of the student's thesis / thematic paper proposal advisor to FGS (a regular instructor with Ph.D. degree or have at least an academic title of no less than an associate professor) (Form GR.44)

↓

FGS appoints the thesis / thematic paper proposal advisor

↓

The thesis / thematic paper proposal advisor gives student advice on his/her thesis / thematic paper proposal and arranges the thesis / thematic paper proposal defense exam within 2 semesters starting from the student's initial registration for a thesis / thematic paper. The thesis / thematic paper proposal advisor nominate the thesis / thematic paper proposal co-advisor when the defense exam date is set.

↓

Program Director submits the name list of the Thesis / Thematic Paper Proposal Examination Committee and sets up the examination date to FGS within 15 working days before examination date (Form GR.39)
(Number of committee members is at least 2 members with Ph.D. degree or have at least an academic title of no less than associate professor, the chair of the committee must be a thesis or thematic paper proposal advisor, and the member must be a regular instructor or external examiner)

↓

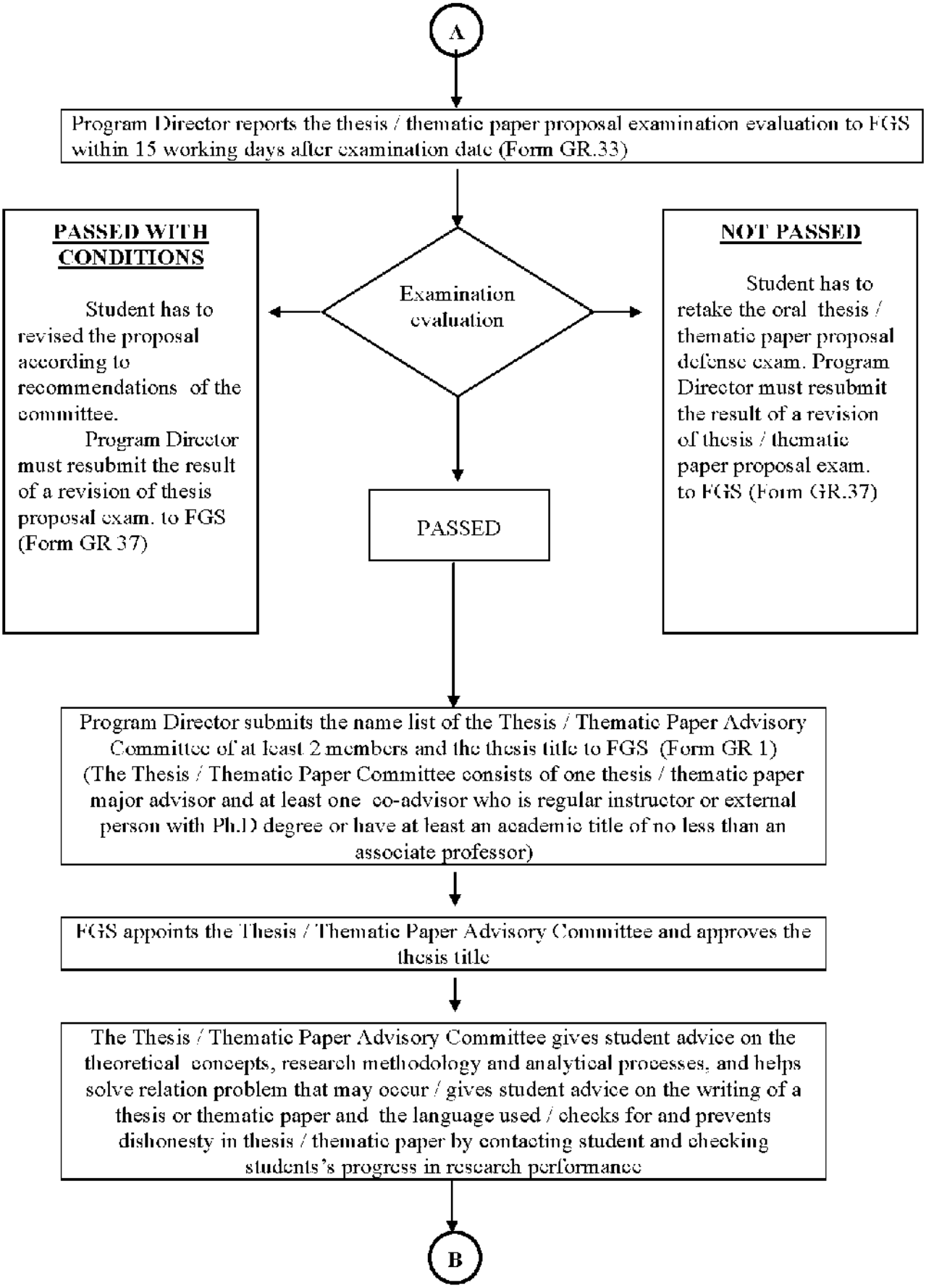
FGS appoints the Thesis / Thematic Paper Proposal Examination Committee and approves the examination date

↓

Student takes the Thesis / thematic paper proposal examination at the same date specified in the document of the Thesis / Thematic Paper Proposal Examination Committee appointed by the Dean of FGS

↓

(A)


A
Program Director reports the thesis / thematic paper proposal examination evaluation to FGS within 15 working days after examination date (Form GR.33)
Examination evaluation
PASSED WITH CONDITIONS
Student has to revised the proposal according to recommendations of the committee.
Program Director must resubmit the result of a revision of thesis proposal exam. to FGS (Form GR 37)
NOT PASSED
Student has to retake the oral thesis / thematic paper proposal defense exam. Program Director must resubmit the result of a revision of thesis / thematic paper proposal exam. to FGS (Form GR.37)
PASSED
Program Director submits the name list of the Thesis / Thematic Paper Advisory Committee of at least 2 members and the thesis title to FGS (Form GR 1)
(The Thesis / Thematic Paper Committee consists of one thesis / thematic paper major advisor and at least one co-advisor who is regular instructor or external person with Ph.D degree or have at least an academic title of no less than an associate professor)
FGS appoints the Thesis / Thematic Paper Advisory Committee and approves the thesis title
The Thesis / Thematic Paper Advisory Committee gives student advice on the theoretical concepts, research methodology and analytical processes, and helps solve relation problem that may occur / gives student advice on the writing of a thesis or thematic paper and the language used / checks for and prevents dishonesty in thesis / thematic paper by contacting student and checking students's progress in research performance
B

- Student whose research thesis involves human beings must undergo training or courses in the area of Ethics in Human Research provided by the Faculty of Graduate Studies according to the curriculum. (Details are available on www.grad.mahidol.ac.th)
- Student must present research project to The Mahidol Univertsity Institutional Review Board (MU-IRB) within 90 days after thesis/thematic paper proposal examination, and before the beginning of conducting research, for any faculties that have no Institutional Review Board of Ethics in Human Research committee.
- Student whose research involves animals for experimental purposes must gain direct approval from the Research Management and Development Department.
- Any original documents certifying any research animals for experimental animals for experimental involving human beings or animals for experimental purposes must be attached in the complete thesis's appendix / thematic paper's appendix

↓

Student conducts research and contacts major advisor in person or other ways at least once per month. Student must report his/her progress and research performance to major advisor, the major advisor will assess the progress in research performance and gives the result P/S/U to Program Director and Dean of FGS every semester until the thesis is completed. (Form GR 42)

↓

Changes in the thesis / thematic paper title and the advisory committee can be done by submitting the request to the major advisor, Program Director and Dean of FGS (Form GR.49 Requirements for Thesis/ Thematic Paper Revision Form)

↓

Student who is qualified to take the thesis / thematic paper defense examination must:

- Spend no less than 90 days (including holidays) doing the thesis or no less than 45 days (including holiday) doing the thematic paper starting from the day when the thesis or thematic paper title and the Thesis or Thematic Paper Advisory Committee are approved by the Dean of FGS
- Pass every course acording to the criteria of the curriculum and obtain no lower than a 3.00 GPA.
- Pass the English language or Foreign language proficiency requirement as set by FGS
- Pass the Comprehensive Examination for a plan B Master's degree student. (Form GR 27 and Form GR 36)
- Be approved by the Thesis or Thematic Paper Advisory Committee.
- Submit the thesis or thematic paper manuscript and abstract written in the approved language, to the Thesis or Thematic Paper Defense Committee for reading at least 15 working days before the examination date

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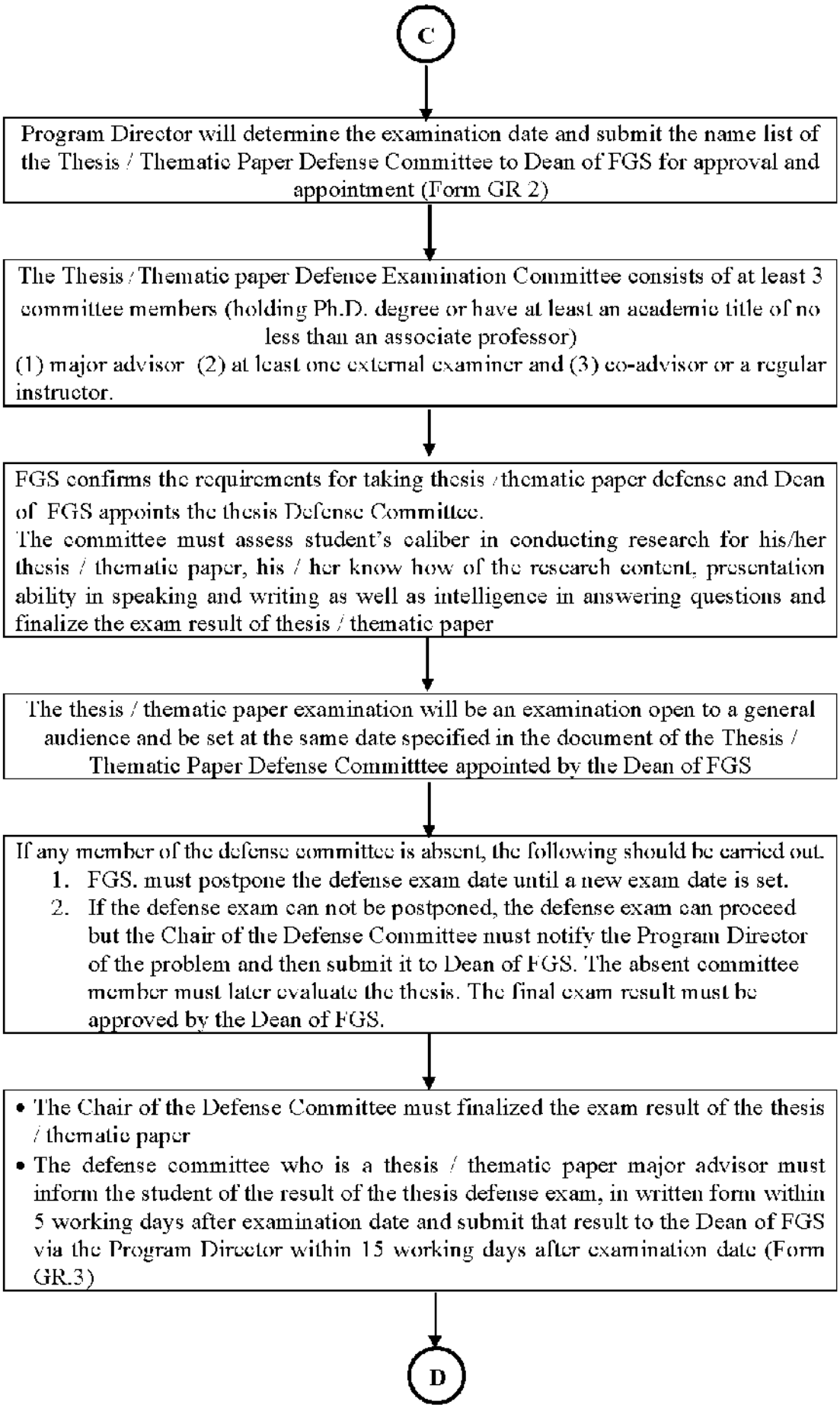
C
Program Director will determine the examination date and submit the name list of the Thesis / Thematic Paper Defense Committee to Dean of FGS for approval and appointment (Form GR 2)
The Thesis / Thematic paper Defence Examination Committee consists of at least 3 committee members (holding Ph.D. degree or have at least an academic title of no less than an associate professor)
(1) major advisor (2) at least one external examiner and (3) co-advisor or a regular instructor.
FGS confirms the requirements for taking thesis / thematic paper defense and Dean of FGS appoints the thesis Defense Committee.
The committee must assess student's caliber in conducting research for his/her thesis / thematic paper, his / her know how of the research content, presentation ability in speaking and writing as well as intelligence in answering questions and finalize the exam result of thesis / thematic paper
The thesis / thematic paper examination will be an examination open to a general audience and be set at the same date specified in the document of the Thesis / Thematic Paper Defense Committtee appointed by the Dean of FGS
If any member of the defense committee is absent, the following should be carried out.
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2. If the defense exam can not be postponed, the defense exam can proceed but the Chair of the Defense Committee must notify the Program Director of the problem and then submit it to Dean of FGS. The absent committee member must later evaluate the thesis. The final exam result must be approved by the Dean of FGS.
• The Chair of the Defense Committee must finalized the exam result of the thesis / thematic paper
• The defense committee who is a thesis / thematic paper major advisor must inform the student of the result of the thesis defense exam, in written form within 5 working days after examination date and submit that result to the Dean of FGS via the Program Director within 15 working days after examination date (Form GR.3)
D

The process of preparing the original copy of thesis / thematic paper and request for thesis / thematic paper checking format service.

1. Student must prepare the original copy of thesis / thematic paper in the format required by FGS.
2. Student should submit the Cover Page, Entitled Page, Approval Page and Abstract Page to the staff of Academic Services Section, FGS, Salaya Campus to have those checked before the defense examination date. This provides student to be able to bring Entitled Page and Approval Page to the Thesis / Advisory Committee and The Thesis / Defense Examination Committee to sign after passing the defense exam. (result : PASSED)
3. After passing the defense exam. Student should bring the original copy of thesis / thematic paper (hard copy and electronic file) to the staff of Academic Services Section, FGS. to have the thesis / thematic paper format checked. Allow at least four working days for service.
4. As for the English Thesis Abstract / Thematic paper Abstract, student should have the Language Center Staff (at the 2nd floor of Graduate Studies Building, Salaya Campus) checked for the English Grammar, the English Abstract should be in a double space format.
5. After having the English Abstract checked by the Language Center Staff, and having corrected, student should submit the final version of the abstract together with Entitled Page and Approval Page to the Dean of FGS to sign. The Dean of FGS will be the last person to sign after other committee members, Program Director and Dean of Faculty where the program held have signed.

- Student must submit the complete thesis or thematic paper (one original and one copy) plus CD in word file and PDF file to the FGS within 21 days (including holidays) of passing the defense exam with "passed" result. A fee will be charged for late submission 200 bath / working day. The "delayed submission" can not last more than 90 days (including holidays) after the "PASSED" result.
- Cancellation of thesis or thematic paper examination result if the delayed submission of the complete thesis or thematic paper and CD has not been received by the FGS within 90 days (including holidays) after the "passed" result, the FGS will cancel the thesis or thematic paper examination result. If the student still wants to receive the degree, the student must register and start the entire processes of the thesis or thematic paper again.

Student must submit the evidence for Thesis Publishing for Graduation.

1. Published documents or letter of acceptance from academic journal

or 2. Present thesis in academic conference which has proceedings

Program Director must submit the request for student's graduation to FGS (Form GR 5)

FGS gives consideration regarding referrals to the Mahidol University Council for authorization of degree

Student is awarded the degree and then she/he can get certificate of Graduation and Transcript

# STUDIES HANDBOOK

# 2024

www.mt.mahidol.ac.th