



New Candidacy Exam Format

(for trial Implementation)

Policy: New Candidacy Exam Format for Doctoral Students Starting in the Spring Semester 2020

To: JI Faculty and Graduate Students

From: David Hung, Associate Dean for Graduate Education

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As the second step of their doctoral program, students must pass the PhD candidacy examination (also known as the PhD qualifying examination). The candidacy examination is a comprehensive assessment of doctoral students. It is an important part of the doctoral education. In general, it should be taken after doctoral students have successfully completed key graduate level courses related to their major research areas while before officially starting their doctoral dissertation research work.

The candidacy examination mainly evaluates the students from the following three aspects:

- 1) Main content of the courses as stipulated in the training plan
- 2) Research progress and professional skills
- 3) Academic integrity

Students entering with a Bachelor's degree should schedule their candidacy examination after completing a minimum of **eighteen** approved credit hours of graduate or relevant (approved) courses. They will generally complete the candidacy examination before the end of the third semester (typically Summer semester) of the second academic year after the enrollment.

Students entering with a Master's degree should schedule their candidacy examination after completing a minimum of **twelve** approved credit hours of graduate or relevant (approved) courses. They will generally complete the candidacy examination during the first semester (typically Fall semester) of the second academic year after the enrollment.

The candidacy examination committee and Graduate Education Office shall inform the PhD students of the arrangement for the examination at least one month prior to the examination.



Candidacy examination consists of two parts: 1) a 90-minute written exam, and 2) a 30-minute oral exam. Doctoral students must first inform the Graduate Office the declaration of his/her major discipline (See **Attachment 1**). To be able to take the candidacy exam, doctoral students must have taken the selected courses listed on **Attachment 1** with a grade B or above before they are eligible to select the courses as part of their exam subjects.

For the 90-minute written exam, students shall select the subject areas based on two graduate-level (5XX or above) subject courses in the area related to their major discipline and one graduate-level (5XX or above) subject course in other discipline closely related to his/her research area. In general, only the courses listed in **Attachment 1** can be selected for the candidacy exam. Exception Policy: Exception to the above rules or to the course selected other than those listed in **Attachment 1** must be approved by both the student's supervisor and the Associate Dean of Graduate Education.

The 30-minute oral exam consists of a 20-minute presentation and a 10-minute Q&A. The topic of the presentation can come from either one of the two major discipline courses selected for the written exam from Attachment 1 (or follow the exceptions policy as listed above for the written exam) that the student has taken or from the research topic which the student has been conducting. The guideline for grading an oral exam is as follows:

- 1) **Clarity (25%)**: the student's ability to explain a topic comprehensible for experienced researchers in related fields (i.e., faculty members). No obvious conceptual or technical mistakes should be made.
- 2) **Contextualization (25%)**: the student's ability to put a topic in a relevant scientific, technological and/or socio-economic context. The student needs to answer why the topic is worth studying.
- 3) **Problem statement (25%)** (for topics selected from research): the student's understanding of the specific problem(s) which his/her research will address.
- 4) **Q/A ability (25%)**: the student's ability to hold a meaningful and constructive discussion with experienced researchers.



The oral examination committee shall be comprised of 3 faculty members from the major and related disciplines. A chair of the committee shall be appointed (by the Associate Dean of Graduate Education/Discipline head) to preside over the work related to the examination. Student's supervisor cannot be included as a member of the candidacy oral examination committee.

Two examination sessions are scheduled during each academic year, one during the fall semester, and the other one during the summer semester. Students must take the written exam and oral exam at the same time for the first candidacy exam.

The Candidacy Examination Committee shall mark the exam result with "pass" or "fail", and give comprehensive comments based on their academic performance and scientific research accomplishments while maintaining good moral ethics.

For the written exam, the passing score for each subject exam is 60 out of 100. The student must achieve at least the passing score on EACH of three subject exams taken in order to PASS the overall written exam. If the student scores below the passing score on only ONE subject exam, he/she is considered as having failed the written exam, and he/she will have to retake the same subject exam again. If he/she scores below the passing score in TWO OR MORE subject exams, he/she is considered as having failed the written exam, and he/she will have to retake the same THREE subject exams again.

For the oral exam, the passing score is 60 out of 100. The student must achieve at least the passing score in order to PASS the oral exam. If the student fails the oral exam, he/she will have to retake the oral exam again using the same format as how it has been taken before (i.e., either by subject exam or by research topic).

The student who fails the candidacy examination for the first time must retake the examination at the next available session. If he/she fails the re-examination again, he/she is considered not suitable for further training as a doctoral student. However, those who meet the requirements for a master program can, after filing an application approved by the supervisor, Associate Dean for Graduate Education, and the Graduate School, transfer to a corresponding master program. After transferring to the master program, the student must complete the master



curriculum and thesis defense within two years. If he or she successfully meets the requirements as set out in the “SJTU Regulations on the Training of Master Degree Students” and passes the thesis defense, the student will be awarded a master's degree and diploma. Otherwise, the student shall be advised to exit the graduate program based on the academic assessment. Exception cases must be evaluated and approved by the Graduate Committee and the Associate Dean for Graduate Education.

This revised new candidacy exam format will take effect starting in the summer semester of 2022.

Attachment 1

Discipline Group	Course Code	SJTU Code	Course Title
Design and Manufacturing	VM541	ME6402J	Mechanical Vibrations
	VM552	ME6601J	Mechatronic Systems Design
	VM555	ME6503J	Engineering Optimization
	VM583	ME6801J	Manufacturing Processes and Systems
	VM564	ECE6602J	Linear Systems
Solid Mechanics	VM505	ME6104J	Finite Element Methods
	VM513	ME6101J	Continuum Mechanics
	VM518	ME6102J	Advanced Mechanics of Composite Materials
	VM645	ME6109J	Wave Propagation in Elastic Solids
Thermal Fluids	VM520	ME6201J	Advanced Fluid Mechanics
	VM523	ME6202J	Computational Fluid Dynamics
	VM530	ME6301J	Advanced Heat Transfer
	VM524	ME6203J	Turbulence
Material Science	VM515	MSE6201J	Electrical, Optical and Magnetic Properties of Materials
	VM565	MSE6202J	Structural, Physical and Chemical Characterization of Materials
	VM508	MSE6601J	Introduction to Soft Matter Physics
	VK554	MSE6502J	Computational Approaches in MSE
Circuits and Devices	VE504	ECE6202J	Solid State Physics
	VE509	ECE6201J	Semiconductor Physics



	VE510	ECE6209J	Principles of Semiconductor Devices
	VM515	MSE6201J	Electrical, Optical and Magnetic Properties of Materials
	VE527	ECE6703J	Computer Aided Design of Integrated Circuits
Electromagnetics, Optics, and Photonics	VE508	ECE6301J	Nonlinear and Ultrafast Optics
	VE509	ECE6201J	Semiconductor Physics
	VE530	ECE6302J	Electromagnetic Theory I
	VE534	ECE6303J	Optics and Photonics
	VE538	ECE6305J	Optical Waves in Crystals
	VE539	ECE6306J	Lasers
	VE552	ECE6307J	Fiber Optics and Biomedical Optics
Communications, Signal Processing, and Control	VE501	ECE6601J	Probability and Random Processes
	VE550	ECE6603J	Information Theory
	VE556	ECE6605J	Image Processing
	VM564	ECE6602J	Linear Systems
	VE655	ECE8601J	Wireless Communication Theory
	VE689	ECE7601J	Wireless Network
Computer Science and Engineering	VE501	ECE6601J	Probability and Random Processes
	VE527	ECE6703J	Computer Aided Design of Integrated Circuits
	VM555	ME6503J	Engineering Optimization
	VE586	ECE6704J	Advanced Computer Networks

Notes:

- 1) Math course cannot be selected for candidacy exam.
- 2) Course syllabus of each course is available at here:

<https://www.ji.sjtu.edu.cn/cn/academics/courses/>