Preliminary Examination Requirements for Image Processing and Graphics (IP&G)

Prerequisites for the IP&G Preliminary Examination are:
1) The student must currently be enrolled in the CS Ph.D. program.
2) The student must have completed at least one semester as a graduate student at
   Vanderbilt in the CS program.
3) The student must have completed an IP&G gateway course (CS 253, CS258) and
   two depth courses in the IP&G area with a grade of B or better in each of the
   courses. Credit for courses taken at another institution can satisfy this requirement
   with approval of the Director of Graduate Studies (DGS).

Applying to take the IP&G Preliminary Examination:
1) The student must have established a faculty research advisor before applying to
   take the preliminary exam.
2) The student must submit a letter of application to the DGS requesting approval to
   take the IP&G examination. The letter should include the area (Image Processing
   or Graphics) in which the student will be examined, should specify the two depth
   courses in the IP&G area that the student has taken, and provide a summary of the
   student’s research interests. The student’s research faculty advisor must endorse
   this letter.
3) This document must be submitted in its final form to the Director of Graduate
   Studies (DGS) no later than 21 days after the first day of class for the semester in
   which the exam is to be taken.
4) The DGS will assemble an examination committee for the student, in consultation
   with the student’s research advisor, if the exam prerequisites have been satisfied.
   The members of this committee are described below. The examination committee
   will first decide whether or not to approve the student’s application. A unanimous
   consensus among the committee members is needed for approval. This decision
   shall be made, and communicated to the student by the DGS, no later than 7 days
   after receipt of the student’s application for the semester in which the exam is to
   be taken. A rejection at this stage carries no penalty, and the student may re-apply
   in future semesters.

Members of the IP&G Examination Committee
1) Once the student’s application for taking the preliminary examination is
   received, the DGS, in consultation with the student’s research advisor, will
   form an examination committee for the student.
2) An IP&G Preliminary Examination committee will consist of three faculty
   members from the IP&G area and a fourth member who is a tenured faculty
   member from outside of the IP&G group. The student’s research advisor must
   be one of the three IP&G faculty sitting on the committee.
3) Committee membership may vary with each student.
Structure of the Written Examination Paper

1) The first part of the IP&G Preliminary Examination involves the preparation of a written examination paper by the student.

2) The examination committee shall present the student with a written specification for the examination paper. This specification will be made available to the student no later than 7 days after the beginning of the semester in which the exam is to be taken.

3) The examination paper specification will list approximately three research papers, and it will ask the student to generate a thoughtful comparative analysis of the material discussed in these papers. In addition to a comparative analysis, the examination paper will be expected to contain a brief discussion of relevant relationships between the contents of these papers and the student’s own research interests. Typical examination paper specifications will also require the student to focus on particular themes or address specific questions in the examination paper.

4) In preparing the paper, the student is welcome to draw on literature beyond that explicitly mentioned in the examination paper specification.

5) References should be appropriately cited. Care should be taken with regard to spelling and grammar and other aspects bearing on clear exposition.

6) The examination paper must be the student’s own work, with no direct assistance provided by any other individual, including the student’s advisor and fellow students.

7) In the Graphics area, the paper should conform to the stylistic guidelines for SIGGRAPH proceedings. In the Image Processing area, the paper should conform to the stylistic guidelines of the IEEE Transactions on Medical Imaging. There are no explicit length requirements, but the paper is expected to be coherent and comprehensive.

8) The examination paper is to be completed within the 14 days that follow the delivery of the specification to the student. An explicit due date and time will be indicated in the specification document.

9) The student is responsible for producing four single-sided paper copies of the resulting examination paper and for delivering those copies to the chair of the examination committee by the required deadline.

10) Within 7 days after the submission of the examination paper, the committee will notify the student of the day, time, and location of the second part of the IP&G Preliminary Examination – the oral examination.

11) Within 14 days after the submission of the examination paper, the committee will provide the student with written comments on the submitted paper.

Structure of the Oral Examination

1) The second part of the IP&G Preliminary Examination involves an oral examination of the student by the examination committee, covering the student’s knowledge of Image Processing or Graphics, the topics addressed in the student’s examination paper, and connections to the student’s own research interests.

2) The oral examination will take place no earlier than 2 days after the delivery of written comments on the examination paper to the student. The date of the oral
examination will be communicated to the student within 7 days after the submission of the examination paper.

3) The oral examination will be approximately 90 minutes in duration. During this exam, the student will be expected to respond to questions posed by members of the examination committee. The content of the oral component may include questions related to the IP&G gateway course (CS 253 or 258) and the two depth courses in IP&G that the student chose in their application, as well as questions concerning the examination paper that was prepared by the student. Often, questions will address points of intersection between class work, the issues addressed in the examination paper, and the student’s chosen research topic and activities. Thus, the student should be prepared to respond to questions requiring the integration of knowledge from multiple sources.

4) In preparation for the oral examination, students are encouraged to consult the readings listed in the syllabus of the IP&G gateway course (CS 253 or 258) and in the syllabi of the two IP&G depth courses selected by the student.

Summary Timeline of the IP&G Preliminary Examination

1) The student must establish a research advisor.
2) The student must submit a letter of application to take the IP&G Preliminary Examination to the Director of Graduate Studies (DGS) no later than 21 days before the first day of class for the semester in which the exam is to be taken.
3) The acceptance or rejection of the application must be communicated to the student no later than 7 days before the first day of class for the semester in which the exam is to be taken.
4) The examination committee must provide the student with a written specification for the examination paper no later than 7 days after the beginning of the semester in which the exam is to be taken.
5) The examination paper is to be completed by the student within the 14 days that follow the delivery of the specification.
6) Within 7 days after the submission of the examination paper, the committee will schedule the oral examination.
7) Within 14 days after the submission of the examination paper, the committee will provide the student with written comments on the submitted paper.
8) The oral examination shall take place no earlier than 2 days after the delivery of written comments on the examination paper to the student.
9) The Director of Graduate Studies (DGS) will convey results of the IP&G Preliminary Examination to the student after the CS program faculty have met to evaluate the student’s performance. The result may be:

   a) Pass
   b) Repeat (Full Examination)
   c) Repeat (Oral Component Only) – pass written component
   d) Repeat (Written Component Only) – pass oral component

When given a “Repeat” result, a student has one semester to satisfy the requirements of the examination committee in order to pass the exam.
e) Fail – may not retake the examination

After the results are announced, the student may meet individually with the members of the examination committee to obtain more details regarding examination performance.

Suggestions

1) It is strongly recommended that students take the IP&G Preliminary Examination no later than their 5th semester after joining the graduate program with a B.S. degree. Many students will be in a position to take the exam much earlier than their 5th semester.

2) A student should establish a relationship with a research advisor by year 2 of his or her graduate program. The research advisor can provide the student with specific advice on preparing for the IP&G Preliminary Examination.

3) Remember that committee membership and content of the examination will vary with student.

(NOTE: For the Spring 2006 Semester only, due to the late delivery of this document, the “first day of classes for the semester” shall be considered to be January 25th for the purposes of the deadlines listed above. In other words, all due dates are pushed back by two weeks for this semester only.)