

# **Department of Computer Science and Information Technology**

## **Proposal for 5-Year Dual Degrees: BA or BS (any major) and MS in Information Technology**

### **Introduction**

Hood College students from all majors are eligible to participate in a 5-year, dual-degree program that allows for an accelerated master's degree in Information Technology within a year after the completion of their undergraduate program.

The program is designed for highly motivated students who have the desire to build career options into their undergraduate curriculum and earn a master's degree in Information Technology. The program is especially relevant to computer science majors, but it is also available to students from other disciplines. All students must complete certain prerequisite courses designed to provide the appropriate background knowledge. Undergraduate courses that are used to meet the prerequisites must be completed with a grade of C- or better.

This program requires the completion of 30 graduate credits beyond the undergraduate courses and the prerequisite foundation courses, including 18 credits of core requirements and 12 elective credits.

Due to its accelerated nature, the program can be completed within five years only if the student's undergraduate program includes the completion of any prerequisite courses prior to the beginning of the fifth year of study.

### **Foundation Courses and Quantitative Literacy**

The Masters of Science in Information Technology requires completion of prerequisite foundation courses designed to provide the appropriate background knowledge.

The foundation courses are:

1. *IT 510 Computing Hardware/Software Systems*
2. *IT 512 Elements of Computer Programming*

### **Students**

Students in the 5-year program must possess this background knowledge by the beginning of the fifth year. This may be achieved in several ways:

1. Students who are pursuing the BS in Computer Science or Computational Science meet the requirement

2. Students in other majors who have taken CS 226 and CS 201 meet the requirement.
3. Students who meet the requirements for taking a graduate course for undergraduate credit may take IT 510 and IT 512 during the senior year.
4. Some combination of 2 and 3

These courses must be completed with a grade of C- or better.

Students are also expected to have a certain level of quantitative literacy. Students are expected to have completed at least one 200-level or above course in the Core Curriculum Quantitative Literacy category with a grade of B or better. Courses currently listed are MATH 201 *Calculus I*, MATH 213 *Statistical Concepts and Methods*, PSY 211 *Elementary Statistics*, SOC 261 *Quantitative Methods for the Social Sciences* or ECMG 212 *Statistics for Economics & Management*. Students must fulfill this requirement before the beginning of their fifth year in the program with a grade of B or better.

Students should plan to complete their foundation courses and meet their quantitative literacy requirement during the third or fourth year of their undergraduate degree. The Core Requirements for the master's degree will be completed during the fifth year of study.

### Core Requirements

|                      |   |      |
|----------------------|---|------|
| <u>IT 514</u>        | Contemporary Issues in Information Technology           | 3.0  |
| <u>ITMG 516</u>      | Introduction to Data Analytics and Business Data Mining | 3.0  |
| <u>IT 518</u>        | Systems Engineering and Integration                     | 3.0  |
| <u>IT 530</u>        | Applied Database Systems                                | 3.0  |
| <u>IT 548</u>        | Telecommunications and Networking                       | 3.0  |
| <u>CSIT 555</u>      | Information Systems Security                            | 3.0  |
| <b>Total Credits</b> |   | 18.0 |

### Electives

The remaining courses used to complete the student's program will be elective courses that are selected in consultation with the adviser. At least two courses must be selected from courses with an IT prefix. Other elective courses are selected freely from the department's graduate computer science and information technology offerings.

## Timeline

The 5-Year Dual Degree program is designed to allow students to complete their Master's program in one year following completion of their undergraduate degree requirements. To do so they must attend a minimum of two academic semesters (Fall and Spring) as full time students in addition to summer terms before or after the Fall-Spring semesters.

During the senior year, students may take the graduate courses IT 510 and IT 512 for undergraduate credit to meet the foundation requirements.

Option A: Students will have completed the undergraduate program, including meeting the IT foundation requirements, during the first four years. They will then complete 6 graduate credits in the summer following the senior year and 12 credits during each of the next two semesters, for a total of 30 graduate credits. This option enables students to join the 5-year program as late as the last semester of their senior year.

Option B: Accelerated students will complete all undergraduate program requirements, and meet the IT foundation requirements, during the first seven semesters. They will take nine credit hours of graduate core courses for graduate credit towards the MS degree during the last semester of the senior year, and three credit hours during the following summer term. They will then complete 9 credits during each of the next two semesters, for a total of 30 graduate credits. This option is better suited for students who have decided to follow the 5-year program early on and have planned their junior and senior year coursework accordingly.

### Cybersecurity Certificate Option

Students in the 5-year program may also receive a Cybersecurity certificate with careful selection of the 12 credits of program electives. Cybersecurity certificate students will need to earn 15 credit hours by taking five courses in Cybersecurity that must include the following courses:

|                 |                               |     |
|-----------------|-------------------------------|-----|
| <b>CSIT 532</b> | Computer Forensics            | 3.0 |
| <b>CSIT 534</b> | Network and Internet Security | 3.0 |
| <b>CSIT 555</b> | Information Systems Security  | 3.0 |

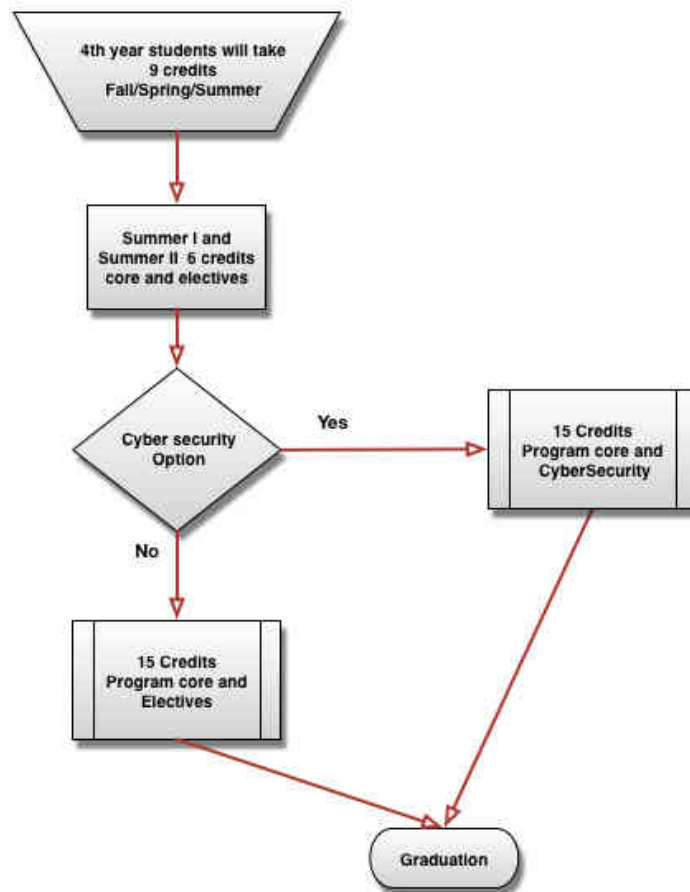
Students interested in the 5-year program will have two possible options.

**Option A:** Complete their undergraduate program including the required quantitative literacy courses during the four years of their undergraduate studies and take at least one graduate core course towards the master's program. Then, enroll in six graduate summer credits and two 12-credit (Fall/Spring) graduate credit bearing semesters. This option enables students to join the 5-year program as late as the last semester of their senior year.

**Option B:** Complete nine credit hours of foundation courses and quantitative literacy during the Fall and Spring semesters of their senior year or sooner. In addition, complete six credit hours from the MS IT core or elective courses during summer I/II semester, also in their senior year. After fulfilling those requirements, students in the 5-year dual degree (see diagram below) will have two different course paths for their 5th year. This option is better suited for students who have decided to follow the 5-year program early on and have planned their junior and senior year coursework accordingly.

**NOTE**

The following flow chart and table are only examples of some of the possible paths students may take to fulfill program requirements for the 5-Year Dual degree. As courses and schedules change, students are strongly advised to consult with their academic advisors as soon as possible of their interest to pursue the dual degree.



*The five-year degree program flow diagram for students following Option B.*

The proposed schedule for Option A is straight-forward as long as the quantitative literacy requirements have met and the student can take a graduate-level course in their senior year. The proposed schedule for Option B requires more planning and a tentative schedule is shown below.

### Tentative Proposed Schedule for 5-yr Dual-Degree (BA/BS-MS)

| YEAR  | FALL                         | Major Cred | Core Cred | Grad Cred | SPRING                           | Major Cred | Core Cred | Grad Cred | SUMMER        | Grad Cred | Total Creds |
|---|------------------------------|------------|-----------|-----------|----------------------------------|------------|-----------|-----------|---------------|-----------|-------------|
| 1   | UGRAD courses                |            |           | 0         | UGRAD courses                    |            |           | 0         | N/A           |           | 35          |
| 2   | UGRAD courses                |            |           | 0         | UGRAD courses                    |            |           | 0         | N/A           |           | 36          |
| 3   | UGRAD courses                |            |           | 0         | UGRAD courses<br>IT Foundation   |            |           | 3         | IT Foundation | 3         | 36          |
| 4   | UGRAD courses                |            |           | 0         | IT514<br>ITMG516<br>IT518        | 0          | 0         | 9         | IT ELECT      | 3         | 30          |
| STUDENTS WILL HAVE COMPLETED 124 CREDITS BY THE END OF THEIR FALL SEMESTER OF THEIR 4 <sup>TH</sup> YEAR. |                              |            |           |           |                                  |            |           |           |               |           |             |
| 5   | IT 548<br>IT 530<br>IT ELECT | 0          | 0         | 9         | CSIT 555<br>IT ELECT<br>IT ELECT | 0          | 0         | 9         |               | N/A       | 18          |
| TOTALS  |                              | 46         | 20        | 9         |                                  | 41         | 12        | 21        |               | 6         | 155         |

- 1 **Green outline** indicates undergraduate credits totaling 124 credits.
- 2 **Purple outline** indicates graduate credits totaling 30 credits.
- 3 **Blue highlight** is the double-counted course that counts toward BOTH degrees.
- 4 **Green highlight** indicates foundation courses that apply toward the IT MS degree, but are taken during the undergraduate coursework.

The proposed 5-year program will not affect exiting resources, schedules or require any additional resources as it is based on existing offerings.