

# COMPUTER APPLICATION DEVELOPMENT BAS

## Computer Application Development

College of Science, Engineering & Technology  
Department of Computer Information Science  
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Website: [cset.mnsu.edu/cis](http://cset.mnsu.edu/cis)

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The CApp major enables students to become developers who can deploy appropriate technology to solve problems in businesses and organizations. Individuals with strong backgrounds of technical and analytical skills, effective communication abilities, and project development knowledge are in demand as the information needs of the world continue to grow. CApp majors can go on to pursue careers as web developers, database application developers, enterprise application developers, and general application programmers.

A student graduating from this program will have the ability to:

- write programs, working either independently or in groups, using different modern high-level and special-purpose languages (including object-oriented language, client-server web programming language and SQL) to implement desired needs.
- use state-of-the-art tools and technologies and best programming practices and standards in the development of applications.
- use current computing knowledge, techniques, skills, and software tools to analyze a problem, determine and document user needs, create an effective project plan, and document program design and implementation.
- effectively add a solution into an already-existing user environment.
- better assimilate into professional working environments and conduct themselves professionally.
- engage in continuing professional development, including the learning of new general-purpose and special-purpose programming languages independently
- analyze the local and global impact of computing on individuals, organizations, and society.

### Academic Map/Degree Plan at [www.mnsu.edu/programs/#All](http://www.mnsu.edu/programs/#All)

#### POLICIES/INFORMATION

**Admission to Major:** The program admits a limited number of students every summer. To be eligible for acceptance to the Computer Application Development major, students must apply for admission to Minnesota State University, Mankato. To be admitted to the program students must satisfy the following requirements:

- The student must have already completed an AS or AAS at an accredited school in computer science, information technology or related area with a GPA of at least 2.5.
- Completion of at least a year of programming courses equivalent to IT 210 and IT 214, with a GPA of 3.0 or above in these courses.
- At least 45 credits of technical course work.

#### Transfer Policy:

- Student will receive 45 credits of technical coursework.
- Student may be able to transfer up to 15 credits of General Education coursework.
- General Education coursework transferred will be subject to transfer evaluation and mapped to appropriate Goal Areas.

#### General Education Policy:

- Minnesota State Mankato policy states that students with an AS or AAS degree are exempt from Goal areas 2 and 11 and that will need 40 credits rather than 44 credits to satisfy General Education requirements.
- Student must fulfill all General Education Requirements, except those from which the student is exempt (2,11), with at least 5 credits of upper-division (300 level or above) courses taken at Minnesota State Mankato.

**GPA Policy.** The completion of any major or minor in the Department of Computer Information Science requires both:

- a GPA of 2.5 or higher for all departmental courses (IT), or their substitutions, used to complete the major or minor, and
- a GPA of 2.5 or higher for all courses, or their substitutions, used to complete the major or minor. This includes all departmental courses, supporting courses, and General Education courses required for the major or minor.

It is recommended that students who cannot maintain a GPA of 3.0 in required 100 and 200 level courses see their advisor for a program review.

**Grade Policy.** All coursework used to complete a departmental major or minor, including required courses, required supporting courses, and required General Education courses, must be taken for a letter grade except for courses offered only as P/N.

No course completed with a grade of "D" can be used to complete a departmental major or minor program, or to meet a departmental prerequisite.

**Registration Hold Policy.** The department will place a registration hold on any student who earns a "D" or "F" in any of its courses. The department will also place such a hold on any student who drops any of its courses after the first two weeks of the semester. A student with a registration hold cannot register for courses until the hold is released, which requires filling out an appeal form and taking it to the student's advisor for discussion. Appeal forms are available from the departmental office. This hold policy does NOT apply to students who are taking 100-level IT courses.

**Dual Major Policy.** Students can earn at most one undergraduate major from this department.

**Incomplete Policy.** The department gives incomplete grades for only two conditions. The first condition is illness, which requires a doctor's written recommendation. The second condition arises when a death in the student's family has caused the student to be away from the campus for an extended period. The student must have a satisfactory grade ("C" or better) in the course at the time of the onset of the condition.

**Internship Policy.** The Department of Computer Information Science continuously strives for improvements in the academic program. Coursework, coupled with extensive laboratory experience, play an important part in the student's educational program. However, application of the concepts discussed in class to on-the-job situations is equally important. As a result, the department requires an internship or a capstone experience for all IT majors.

**Excluded Courses Policy.** IT 201, IT 296 do not count toward a major or minor in the department.

**Residency Policy.** Students must earn at least 50 percent of the credits required for a departmental major or minor at Minnesota State Mankato.

#### Required General Education

All of these courses (or comparable) are available at the 2-year schools. Some are required in various 2-year programs. (Corresponding MSU course in parentheses.) Students may have already completed these courses before entering MSU, thus the remaining credits to complete the 60 required credits must be completed with open electives.

CMST	102	Public Speaking (3)
ENG	101	Composition (4)
ENG	272W	Business Communication (4)
MATH	112	College Algebra (4)
STAT	154	Elementary Statistics (4)

#### Major Common Core

22 credits total consisting of 4 classes (16 credits) specifically designed for tight integration with industry partners, plus 6 credits of internship (1 or 2 credits per semester; pass/no credit portfolio based on employer recommendation).

CMST	333	Advanced Public Communication (4)
IT	340	Introduction to Database Systems (4)
IT	350	Information Security (4)
IT	380	Systems Analysis and Design (4)
IT	497	Internship (1-12)

#### Major Restricted Electives

5 classes (20 credits) of electives selected from the following. Additional special topics classes may also be available.

IT	310	Data Structures & Algorithms (4)
IT	311	Business Application Programming (4)
IT	320	Machine Structures and Operating Systems (4)

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IT	360	Introduction to Networking (4)
IT	414	Advanced Object-Oriented Programming with Design Patterns (4)
IT	440	Database Management Systems II (4)
IT	450	Information Warfare (4)
IT	460	Network and Security Protocols (4)
IT	462	Network, Security, Administration and Programming (4)
IT	465	Mobile Device Application Programming (4)
IT	480	Software Quality Assurance and Testing (4)
IT	482	Human Computer Interaction (4)
IT	483	Web Applications and User Interface Design (4)
IT	484	Software Engineering (4)
IT	499	Individual Study (1-4)