ARKANSAS STATE UNIVERSITY
COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

DEGREE AND MAJOR: M. S., COMPUTER SCIENCE
EMPHASIS: 

CATALOG YEAR: 2019 - 2020
revised: 01/10/20

CORE REQUIREMENTS: 9-21 hours
Compilers or Automata Theory (one of next two)
CS 5133: Compilers
CS 5723: Automata Theory

Computer Systems (one of next four)
CS 5313: Computer Networks
CS 6213: Parallel Processing
CS 6243: Distributed Systems
CS 6253: Heterogeneous Computing

Algorithms (one of next one)
CS 5713: Analysis of Algorithms

ELECTIVES: 6-24 hours (Total 33 hrs including core courses)
Selections may include up to 6 hrs. MATH/STAT, w/ prior approval.
CS 5113: Software Engineering
CS 5223: UNIX Systems Programming
CS 5413: Fundamental Computer Graphics
CS 5423: Interactive Computer Graphics
CS 5433: Artificial Intelligence
CS 5543: Database Systems
CS 5613: Mobile Application Development
CS 5623: Fundamentals of Data Science
CS 5823: Scripting Languages
CS 583V: Internship (not counted towards degree)
CS 6123: Software Security
CS 6223: Advanced Computer Architecture
CS 6233: Operating System Design
CS 6263: Cloud Computing
CS 6313: Data Security
CS 6323: Computer Security
CS 6333: Network and Internet Security
CS 6343: Cloud Security
CS 6353: Hardware Security
CS 6413: Solid Modeling
CS 6423: Robotic Software Control
CS 6443: Machine Learning
CS 6463: Image Processing
CS 6523: Data Mining Techniques
CS 6543: Adv. Database Systems
CS 6613: Bioinformatics
CS 6713: Advanced Analysis of Algorithms
CS 6723: Computability Theory
CS 6823: ST - Computer & Network Security
CS 6823: ST - Operational Research
CS 6813: Seminar in Computer Science
CS 688V: Independent Study
CS 689V: Thesis

UNDERGRADUATE DEFICIENCIES
Required deficiencies bring M. S. candidate to level of B. S. degree graduate.
No 6000-level courses for credit until all deficiencies circled below have been completed.

Computer Science:
three of next three
CS 2114: Structured Programming
CS 2124: OOP & Fund Data Structures
CS 3113: Algorithms & Adv Data Structures
or three of next three
CS 5012: Acc Structured Programming
CS 5022: Acc OOP & Fund Data Structures
CS 5032: Acc Algorithms & Adv Data Struct

Mathematics and Statistics:
MATH 2183: Discrete Structures
MATH 2204: Calculus I
MATH 2214: Calculus II
STAT 3233: Applied Statistics I

GRADUATION CHECK LIST
Undergraduate deficiencies
18 hours of 6000 level coursework
33 hours for degree
3.00 average overall
3.00 average in major
Comprehensive exam
Emphasis in 
(next page for details)

Current Enrollment:
1
2
3
4

The above named student has met all requirements for graduation
providing he/she satisfactorily completes the courses of current enrollment.

Advisor Date
Chair of Computer Science Date

Dean of College of Engineering & Computer Science Date

Note:
A minimum of thirty-three hours are required for this degree,
eighteen of which must be 6000 level coursework.
An emphasis can be added into student's M.S. degree if the requirements for the corresponding emphasis are met.

**EMPHASIS IN CYBER SECURITY (12 hours)**

**Required courses: three of next four**
- CS 6123: Software Security
- CS 6313: Data Security
- CS 6323: Computer Security
- CS 6333: Network and Internet Security

**Elective courses:**
- CS 6343: Cloud Security
- LAW 6033: Cyberlaw and E-Commerce

**EMPHASIS IN DATA SCIENCE (12 hours)**

**Required courses: three of next four**
- CS 5543: Database Systems
- CS 5623: Fundamentals of Data Science
- CS 6443: Machine Learning
- CS 6523: Data Mining Techniques

**Elective courses:**
- CS 6543: Advanced Database Systems
- STAT 6433: Time Series Analysis
- STAT 6643: Multivariate Analysis
- STAT 6663: Data Analysis II: Analy. of Var.

**EMPHASIS IN HIGH PERFORMANCE COMPUTING (12 hours)**

**Required courses: three of next four**
- CS 6213: Parallel Processing
- CS 6243: Heterogeneous Computing
- CS 6253: Distributed Systems
- CS 6263: Cloud Computing

**Elective courses:**
- CS 5223: Unix Systems Programming
- CS 6223: Advanced Computer Architecture
- CS 6233: Operating System Design