

Glendale College
Course Outline of Record Report
01/31/2025

CS/IS183 : Digital Forensics Fundamentals

General Information

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| Author: | <ul style="list-style-type: none">Vladimir Paransky |
| Attachments: | DE Addendum_CSIS_183 COR_08_26_2020 CoDE_05_23_2023.pdf |
| Course Code (CB01) : | CS/IS183 |
| Course Title (CB02) : | Digital Forensics Fundamentals |
| Department: | CSIS |
| Proposal Start: | Fall 2022 |
| TOP Code (CB03) : | (0708.00) Computer Infrastructure and Support |
| CIP Code: | (11.1003) Computer and Information Systems Security/Auditing/Information Assurance. |
| SAM Code (CB09) : | Possibly Occupational |
| Distance Education Approved: | No |
| Will this course be taught asynchronously?: | No |
| Course Control Number (CB00) : | CCC000579621 |
| Curriculum Committee Approval Date: | Pending |
| Board of Trustees Approval Date: | Pending |
| Last Cyclical Review Date: | 08/01/2020 |
| Course Description and Course Note: | CS/IS 183 is an introduction to the methods used to properly conduct a computer forensics investigation beginning with a discussion of ethics, while mapping to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification. Topics covered include: an overview of computer forensics as a profession; the computer investigation process; understanding operating systems boot processes and disk structures; data acquisition and analysis; technical writing; and a review of familiar computer forensics tools. |
| Justification: | New Course NT FR |
| Academic Career: | <ul style="list-style-type: none">Credit |
| Mode of Delivery: | No value |
| Author: | No value |
| Course Family: | No value |

Academic Senate Discipline

| | |
|-----------------------|---|
| Primary Discipline: | <ul style="list-style-type: none">Computer Information Systems (Computer network installation, microcomputer technology, computer applications) |
| Alternate Discipline: | No value |
| Alternate Discipline: | No value |

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade Only

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

Not Applicable

Transferability

Transferable to CSU only

Transferability Status

Approved

| C-ID | Area | Status | Approval Date | Comparable Course |
|------|--|----------|---------------|---|
| ITIS | Information Technology and Information Systems | Approved | 02/16/2021 | ITIS 165 - Digital Forensics Fundamentals |

Units and Hours

Summary

| | |
|---------------------------------------|-----|
| Minimum Credit Units (CB07) | 3 |
| Maximum Credit Units (CB06) | 3 |
| Total Course In-Class (Contact) Hours | 54 |
| Total Course Out-of-Class Hours | 108 |
| Total Student Learning Hours | 162 |

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience Education Status (CB10)

Weekly Student Hours

| | In Class | Out of Class |
|------------------|----------|--------------|
| Lecture Hours | 3 | 6 |
| Laboratory Hours | 0 | 0 |
| Studio Hours | 0 | 0 |

Course Student Hours

| | |
|--------------------------------|----|
| Course Duration (Weeks) | 18 |
| Hours per unit divisor | 0 |

Course In-Class (Contact) Hours

| | |
|--------------|----|
| Lecture | 54 |
| Laboratory | 0 |
| Studio | 0 |
| Total | 54 |

Course Out-of-Class Hours

| | |
|--------------|-----|
| Lecture | 108 |
| Laboratory | 0 |
| Studio | 0 |
| Total | 108 |

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

| Activity Name | Type | In Class | Out of Class |
|---------------|----------|----------|--------------|
| No Value | No Value | No Value | No Value |

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Advisory

CS/IS194 - Information Technology Essentials

Objectives

- Install, configure and maintain devices, PCs, and software for end users.
- Describe the basics of networking and security/forensics.

OR

Advisory

CS/IS196 - Advanced Networking: Security

Objectives

- Design and administer an organization's security policy.
- Detect and remove malicious content from network resources.

OR

Advisory

or knowledge of workstation hardware and storage

Entry Standards

| Entry Standards | Description |
|-----------------|-------------|
| No value | No value |

Course Limitations

| Cross Listed or Equivalent Course | Description |
|-----------------------------------|-------------|
| No value | No value |

Specifications

Methods of Instruction

| | |
|------------------------|---------|
| Methods of Instruction | Lecture |
|------------------------|---------|

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|------------------------|------------|
| Methods of Instruction | Multimedia |
|------------------------|------------|

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|------------------------|----------------|
| Methods of Instruction | Demonstrations |
|------------------------|----------------|

Out of Class Assignments

reports (e.g. reports on assigned reading topics such as crime/incident scene processing best practices;
labs on NETLAB (e.g. simulated labs that provide hands on learning such as introduction to Autopsy Forensic Browser).

Methods of Evaluation

Rationale

| | |
|-------------------|--|
| Exam/Quiz/Test | final examination. |
| Project/Portfolio | hands-on projects (e.g. computing forensics analysis); |
| Exam/Quiz/Test | problem-solving assignments (e.g. use of computer forensics tools); |
| Exam/Quiz/Test | Presentations (e.g. computer forensics case scenarios and analysis); |
| Exam/Quiz/Test | midterm examinations; |

Textbook Rationale

No Value

Textbooks

| Author | Title | Publisher | Date | ISBN |
|-------------------------------|--|-----------|------|----------------|
| Nelson, Bill, Amelia Phillips | Guide to Computer Forensics and Investigations | Cengage | 2019 | 978-1337568944 |

Other Instructional Materials (i.e. OER, handouts)

No Value

Materials Fee

No value

Learning Outcomes and Objectives

Course Objectives

Define computer forensics;

summarize the certification requirements for computer forensics labs;

measure the different ways for proper data acquisition;

classify the rules for proper digital evidence handling;

analyze how data is stored and managed by an operating system;

analyze various computer forensics tools;

validate the evidence during the analysis process;

identify and reconstruct graphics files;

describe the importance of network forensics;

analyze email investigations;

describe guidelines for testifying in court;

maintain a high level of ethical behavior in their work.

SLOs

Explain how to prepare for a computer investigation

Expected Outcome Performance: 70.0

| | |
|--------------------------|--|
| <i>ILOs</i> Core ILOs | Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication. |
|--------------------------|--|

| | |
|--|--|
| <i>CSIS</i> Information Technology Certificate | Demonstrate installing, configuring and maintaining computer and mobile devices, including diagnosing, resolving and documenting common hardware and software. |
|--|--|

| | |
|--|--|
| <i>CSIS</i> Information Technology - A.S. Degree Major | Demonstrate installing, configuring, and maintaining computer and mobile devices, including diagnosing, resolving, and documenting common hardware and software. |
|--|--|

| | |
|---|---|
| <i>CSIS</i> Computer Science - Certificate | Prepare a software project to implement a single scientific, mathematical, business, or technical function. |
|---|---|

| | |
|--|---|
| <i>CSIS</i> Computer Science - A.S. Degree Major | Prepare a software project to implement a single scientific, mathematical, business, or technical function. |
|--|---|

| | |
|---|---|
| <i>CSIS</i> Computer Software Technician | demonstrate the ability to independently create, save, modify and print a document using a word processing program and appropriate assistive technology |
|---|---|

| | |
|---|--|
| <i>CSIS</i> Web Development - A.S. Degree Major | use industry standard tools and techniques to produce, publish and maintain Web sites and Web content. |
|---|--|

| | |
|--|--|
| <i>CSIS</i> Web Development - Certificate | use industry standard tools and techniques to produce, publish and maintain Web sites and Web content. |
|--|--|

Explain how to properly gather evidence and maintain records of chain of custody

Expected Outcome Performance: 70.0

| | |
|--------------------------|--|
| <i>ILOs</i> Core ILOs | Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication. |
|--------------------------|--|

| | |
|--|--|
| <i>CSIS</i> Information Technology Certificate | Demonstrate installing, configuring and maintaining computer and mobile devices, including diagnosing, resolving and documenting common hardware and software. |
|--|--|

| | |
|--|--|
| <i>CSIS</i> Information Technology - A.S. Degree Major | Demonstrate installing, configuring, and maintaining computer and mobile devices, including diagnosing, resolving, and documenting common hardware and software. |
|--|--|

| | |
|---|---|
| CS/S Computer Science - A.S. Degree Major | Prepare a software project to implement a single scientific, mathematical, business, or technical function. |
|---|---|

| | |
|--|---|
| CS/S Computer Science - Certificate | Prepare a software project to implement a single scientific, mathematical, business, or technical function. |
|--|---|

| | |
|--------------------------------------|---|
| CS/S Computer Software Technician | demonstrate the ability to independently create, save, modify and print a document using a word processing program and appropriate assistive technology |
|--------------------------------------|---|

| | |
|---------------------------------------|--|
| CS/S Web Development - Certificate | use industry standard tools and techniques to produce, publish and maintain Web sites and Web content. |
|---------------------------------------|--|

| | |
|--|--|
| CS/S Web Development - A.S. Degree Major | use industry standard tools and techniques to produce, publish and maintain Web sites and Web content. |
|--|--|

Use forensic tools to analyze digitally stored evidence

Expected Outcome Performance: 70.0

| | |
|-------------------|--|
| ILOs Core ILOs | Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas. |
|-------------------|--|

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|--|--|
| | Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems. |
|--|--|

| | |
|---|--|
| CS/S Information Technology Certificate | Demonstrate installing, configuring and maintaining computer and mobile devices, including diagnosing, resolving and documenting common hardware and software. |
|---|--|

| | |
|---|--|
| CS/S Information Technology - A.S. Degree Major | Demonstrate installing, configuring, and maintaining computer and mobile devices, including diagnosing, resolving, and documenting common hardware and software. |
|---|--|

| | |
|---|---|
| CS/S Computer Science - A.S. Degree Major | Prepare a software project to implement a single scientific, mathematical, business, or technical function. |
|---|---|

| | |
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| CS/S Computer Science - Certificate | Prepare a software project to implement a single scientific, mathematical, business, or technical function. |
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| CS/S Web Development - Certificate | use industry standard tools and techniques to produce, publish and maintain Web sites and Web content. |
|---------------------------------------|--|

| | |
|--|--|
| CS/S Web Development - A.S. Degree Major | use industry standard tools and techniques to produce, publish and maintain Web sites and Web content. |
|--|--|

Course Content

Lecture Content

Computer Forensics as a Profession 4 hrs

- overview of digital forensics
- maintaining professional conduct
- understanding data recovery

Computing Investigation Processes 4 hrs

Microsoft Operating Systems, Boot Processes and Disk Structures 4 hrs

- boot sequence
- FAT disks
- NTFS disks
- disk partitions

Macintosh and Linux Operating Systems, Boot Processes and Disk Structures 4 hrs

- boot sequence
- Mac file structure

The Investigator's Office 5 hrs

- forensic lab accreditation requirements
- physical requirements for digital forensics lab
- basic forensic workstation

Current Computer Forensics Tools 5 hrs

- digital forensics software tools
- digital forensics hardware tools

Digital Evidence Controls 4 hrs

- Linux validation methods
- Windows validation methods

Crime/Incident Scene Processing 4 hrs

- identifying digital evidence
- preparing for a search

Data Acquisition 4 hrs

- mini WinFE boot CDs and USB drives
- Linux boot CD

Computing Forensics Analysis 3 hrs

Email Investigations 3 hrs

- Email crimes and violations
- Email servers
- specialized Email forensic tools

Graphic Image Recovery 3 hrs

- recognizing graphic files
- understanding data compression

High Tech Reports 3 hrs

- guidelines for writing reports
- generating report findings with forensic software tools

Expert Witness Overview 4 hrs

- code of ethics
- ethical difficulties in expert witness

Total hours - 54