De Anza College

Course Outline of Record Report

10/02/2025

CISD067. : Implementing Responsible AI

General Information

Faculty Initiator:	• Sukhjit Singh • Pape, Mary
Attachments:	Hybrid_CIS_67_2026F.pdf Online_CIS_67_2026F.pdf
Course ID (CB01A and CB01B) :	CISD067.
Short Course Title:	IMPLEMENTING RESPONSIBLE AI
Course Title (CB02) :	Implementing Responsible AI
Department:	CIS - Computer Sci and Info Systems
Effective Term:	Fall 2026
TOP Code (CB03) :	(0707.10) *Computer Programming
CIP Code:	(11.0201) Computer Programming/Programmer, General.
SAM Priority Code (CB09) :	C - Clearly Occupational
Distance Education Approved:	Yes
Course Control Number:	No value
Curriculum Committee Approval Date:	06/17/2025
Board of Trustees Approval Date:	Pending
External Review Approval Date:	09/01/2026
Course Description:	This course addresses the ethical, societal, and governance aspects of artificial intelligence, preparing students to navigate and implement AI responsibly. Key topics include AI ethics frameworks, transparency, fairness, accountability, and the societal impact of AI technologies. Students will explore real-world case studies, focusing on ethical decision-making, policy implications, and responsible AI practices across various industries. The course also introduces tools and guidelines for integrating ethical AI into business operations, emphasizing frameworks for data governance, privacy, and bias mitigation. By the end, students will be equipped to assess and address ethical challenges in AI, contributing to responsible innovation in their fields.
Course Type (CB27) :	• Lower Division
Mode of Delivery:	• Online • Hybrid
Faculty Initiator:	No value
Course Family:	Not Applicable

Faculty Requirements

Discipline 1:	• Computer Science

Discipline 2:	No value
Discipline 3:	No value
FSA:	• FHDA FSA - COMPUTER SCIENCE

Formerly Statement

Formerly Statement

No Value

Course Justification

Course Justification

This is a credit CTE course that is a required course for the Applied Artificial Intelligence Certificate of Achievement - Advanced. This course is CSU transferable. It aligns with industry demand for professionals skilled in implementing AI solutions that prioritize equity, inclusivity, and societal benefit, ensuring that students not only become proficient in AI technologies but also understand the importance of their responsible application.

Stand-Alone Statement

Stand-Alone Statement

No Value

Course Philosophy

Course Philosophy

No Value

CTE Course

Is this a CTE (Career Technical Education) course?

Yes

Honors/Non-honors Course

Is this an honors/non-honors course?

No

Mirrored Credit/Noncredit Course

Is this a mirrored credit/noncredit course?

Yes - don't forget to duplicate the revisions in the mirrored credit/noncredit course

Cross-listed Course

Is this a cross-listed course?

No

Foothill Equivalency

Does the course have a Foothill equivalent?

No

Foothill Faculty Consultation Name

No Value

Foothill Course ID

No Value

Course Development Options

Basic Skill Status (CB08)	**Course Special Class Status (CB13)**	**Grade Options**
Course is not a basic skills course.	Course is not a special class.	• Letter Grade • Pass/No Pass
Repeat Limit	**Course Prior To College Level**	**Repeatability Statement**
0	Not applicable.	No value
Course Support Status (CB26)		
Course is not a support course		

Associated Programs

☑ Course is part of a program

Associated Program	Award Type	Active
Applied Artificial Intelligence Associate of Science (In Development)	Associate in Science (A.S.) Degree	Fall 2026

Applied Artificial Intelligence Certificate of Achievement (In Development)	Certificate of Achievement (COA)	Fall 2026
Applied Artificial Intelligence Certificate of Achievement - Advanced (In Development)	Certificate of Achievement-Advanced (COA-A)	Fall 2026

Transferability & Gen. Ed. Options

Course General Education Status (CB25)

Y

Transferability (CB05)

Transferable to CSU only

Transferability Status

Approved

UC Transferable and/or Lower-Division Major Requirement

Will the course be UC transferable?

No

If yes, identify the lower-division UC course and campus.

No Value

Will the course fulfill a UC/CSU lower-division major requirement?

No

If yes, identify the UC/CSU campus, course and major.

No Value

Units and Hours

Summary

Minimum Credit Units	4.5
Maximum Credit Units	4.5
Total Course In-Class (Contact) Hours	66
Total Course Out-of-Class Hours	96
Total Student Learning Hours	162

Credit / Non-Credit Options

Course Credit Status (CB04)

Credit - Degree Applicable

Course Non Credit Category (CB22)

Credit Course.

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	4	8
Laboratory Hours	1.5	0
NA Hours	0	0

Course Student Hours

Course Duration (Weeks)	12
Hours per unit divisor	36
Course In-Class (Contact) Hours	
Lecture	48
Laboratory	18
NA	0
Total	66
Course Out-of-Class Hours	
Lecture	96
Laboratory	0
NA	0
Total	96

Units and Hours - Weekly Specialty Hours

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

SKIP

No Value

Specifications

Methods of Instruction

Methods of Instruction	Methods of Instruction

Methods of Instruction
Collaborative learning and small group exercises
Collaborative projects
Discussion and problem-solving performed in class
Discussion of assigned reading
Guest speakers
Homework and extended projects
In-class exploration of internet sites
Laboratory discussion sessions and quizzes that evaluate the proceedings weekly laboratory exercises
Lecture and visual aids
Quiz and examination review performed in class

Assignments

    A. Ethical Analysis of an AI System - Analyze an existing AI system to identify potential ethical concerns related to bias, fairness, transparency, and accountability.
    B. Bias Detection and Mitigation in AI Models (Hands-on Lab - Implement bias detection and mitigation techniques using real-world datasets.
    C. AI Governance & Compliance Policy Brief - Develop an AI governance and compliance policy for a fictional company deploying AI in a high-stakes industry (e.g., healthcare, finance, hiring).
    D. AI Ethics Debate & Reflection
        1. Engage in a structured debate on a controversial AI ethics topic and reflect on different perspectives.Responsible AI Implementation Proposal
        2. Develop a real-world implementation plan for an AI system that adheres to responsible AI principles.

Methods of Evaluation

Methods of Evaluation	**Methods of Evaluation**

Methods of Evaluation

    A. Programming assignments and labs (at instructor discretion) evaluated on correct output and implementation of required constructs.
    B. Ethical AI case study reports analysis evaluated on completeness and correctness.
    C. Midterm and final examinations evaluated on correctness.
    D. Final project and presentation assessed based on completeness and clarity of idea presentation.
    E. Class participation in discussions and debates evaluated on meaningful contribution of ideas.

Essential Student Materials/Essential College Facilities

Essential Student Materials:
- None

Essential College Facilities:
- None

Examples of Primary Texts and References

Author	Title	Publisher	Date/Edition	ISBN

Prof Luciano Floridi	The Ethics of Artificial Intelligence: Principles, Challenges, and Opportunities	Oxford University Press	November 11, 2023	978-0198883098

Suggested Reading List

No Value

Learning Outcomes

Course Objectives

Understand Ethical and Governance Principles for AI

Implement Responsible AI in Network and Infrastructure Layers

Develop AI-Driven Solutions While Ensuring Operating System (OS) Security

Ensure Ethical Use of AI in Databases and Data Management

Deploy AI Responsibly in Virtual Machines and Cloud Infrastructure

Integrate Responsible AI in Programming Languages and Development Frameworks

Design Ethical AI for Mobile and Web Applications

Enhance End-User Trust Through AI Transparency and Explainability

Promote Inclusive and Fair AI-Driven User Experience (UX) Design

Establish Responsible AI Practices at Every Layer of AI Development

CSLOs

Evaluate and Implement Responsible AI Across the Technology Stack   Expected SLO Performance: 0.0

Design and develop ethical AI solutions with transparency and accountability.   Expected SLO Performance: 0.0

Outline

Course Outline

A. Understand Ethical and Governance Principles for AI
   1. Define key ethical concerns in AI, including bias, fairness, transparency, and accountability.
   2. Analyze international AI governance frameworks and policies, such as GDPR, IEEE AI Ethics Guidelines, and NIST AI Risk Management Framework.
   3. Evaluate the role of regulatory compliance in AI deployments across industries (healthcare, finance, law enforcement, education, etc.).
   4. Assess case studies of ethical AI failures and identify lessons learned.

B. Implement Responsible AI in Network and Infrastructure Layers
   1. Examine how AI interacts with network security and data transmission protocols.
   2. Understand AI's impact on network privacy, including encrypted data transmission, VPNs, and secure authentication.
   3. Assess potential security vulnerabilities when integrating AI models into edge computing and IoT devices.
   4. Apply AI-driven intrusion detection and network monitoring responsibly while ensuring user privacy and avoiding unnecessary surveillance.

C. Develop AI-Driven Solutions While Ensuring Operating System (OS) Security
   1. Identify how AI interacts with various operating systems (Windows, Linux, macOS, mobile OS).
   2. Ensure secure AI deployments by understanding process management, access control, and system permissions.
   3. Discuss the risks of AI-enabled malware detection and endpoint security solutions, ensuring transparency in AI decision-making.
   4. Evaluate responsible implementation of automated system updates and patches to prevent AI-driven vulnerabilities.

D. Ensure Ethical Use of AI in Databases and Data Management
   1. Understand the role of AI in database management systems (SQL, NoSQL, distributed databases).
   2. Apply AI-driven data indexing, search optimization, and predictive analytics while ensuring fairness in decision-making.
   3. Ensure responsible data governance policies, including user consent, encryption, and retention policies.
   4. Evaluate risks associated with AI-based data scraping, aggregation, and profiling, particularly in handling sensitive user data.

E. Deploy AI Responsibly in Virtual Machines and Cloud Infrastructure
   1. Examine the role of AI in cloud computing platforms (AWS, Azure, Google Cloud).
   2. Assess AI's impact on virtual machines, containers (Docker, Kubernetes), and serverless computing.
   3. Implement responsible AI load balancing, auto-scaling, and cloud security policies.
   4. Ensure compliance with multi-cloud and hybrid-cloud AI deployments, addressing data sovereignty and cross-border data transfer regulations.

F. Integrate Responsible AI in Programming Languages and Development Frameworks
   1. Compare AI's implementation across major programming languages (Python, Java, C++, Rust, JavaScript).
   2. Ensure responsible AI model training and deployment practices, addressing overfitting, adversarial attacks, and robustness.
   3. Evaluate ethical considerations in AI-driven software development lifecycle (SDLC), including responsible code documentation, testing, and debugging.
   4. Apply AI in code review and bug detection tools while ensuring fairness in automated recommendations.

G. Design Ethical AI for Mobile and Web Applications
   1. Implement responsible AI-driven chatbots, recommendation systems, and virtual assistants in web and mobile applications.
   2. Address AI's impact on mobile operating systems (Android, iOS) and cross-platform frameworks (React Native, Flutter).
   3. Assess the privacy implications of AI-based user tracking, behavior analysis, and targeted advertising.
   4. Develop AI applications that prioritize user agency, informed consent, and opt-out mechanisms.

H. Enhance End-User Trust Through AI Transparency and Explainability
   1. Implement AI explainability techniques such as SHAP (Shapley Additive Explanations) and LIME (Local Interpretable Model-agnostic Explanations).
   2. Ensure users understand AI decision-making by designing intuitive model transparency features.
   3. Conduct responsible A/B testing and user experience (UX) research without exploiting user vulnerabilities.
   4. Develop AI-driven assistive technologies that improve accessibility while respecting user autonomy.

I. Promote Inclusive and Fair AI-Driven User Experience (UX) Design
   1. Apply responsible AI principles to voice assistants, augmented reality (AR), and virtual reality (VR) applications.
   2. Ensure AI-powered personalization algorithms (such as recommendation systems) avoid echo chambers and promote diverse content.
   3. Evaluate how AI-based emotion recognition and sentiment analysis may introduce bias or ethical concerns.
   4. Design AI-powered interfaces that consider neurodiversity, disability accommodations, and cross-cultural differences.

J. Establish Responsible AI Practices at Every Layer of AI Development
   1. Conduct thorough risk assessments and AI audits across all technology layers.
   2. Develop an AI ethics framework for organizations, ensuring cross-functional collaboration between data scientists, software engineers, legal teams, and business executives.
   3. Implement continuous monitoring and impact assessments to measure AI's long-term societal effects.
   4. Design responsible AI documentation and communication strategies to foster public trust and regulatory compliance.

Lab Outline

    A. Understand core AI ethics principles—bias, fairness, and accountability—and compare governance frameworks like GDPR, IEEE, and NIST.
    B. Analyze AI's role in network and IoT infrastructure, focusing on privacy, security, and vulnerabilities in edge devices.
    C. Configure and secure AI on operating systems and endpoints, including malware detection and permission management.
    D. Evaluate responsible data use in AI, including user consent, data scraping risks, and profiling ethics.
    E. Deploy and audit AI in cloud platforms and containerized environments, and compare training across programming languages.
    F. Design privacy-conscious AI applications for mobile and web, including consent features and behavior tracking audits.
    G. Apply explainability tools (e.g., SHAP, LIME) and assess inclusive UX design for accessibility and fair personalization.
    H. Conduct organization-wide AI ethics audits and implement continuous bias monitoring and feedback systems.

Blue Form

For changes to the units and hours tab; 1) Contact the Curriculum Office at curriculum@fhda.edu with the course information changes; and 2) address items 1-3 below. Please be aware that load factors and seat counts are assigned based on established, negotiated values.

No Value

1. Is the unit(s) change required for articulation?

No Value

2. If the course is UC or CSU transferable, identify one UC or CSU campus with the same unit value requested and copy and paste the catalog description of the course.

No Value

3. Identify the areas in the course outline of record that justify the unit(s) and/or hour(s) change.

No Value

Office Use ONLY: For a REVISION, state the existing unit(s); lec hour(s) and load; lab hour(s) and load; and seat count.

No Value

Office Use ONLY: For a REVISION, state the new unit(s); lec hour(s) and load; lab hour(s) and load; and seat count.

No Value

Office Use ONLY: For NEW, state the unit(s); lec hour(s) and load; lab hour(s) and load; and seat count.

- Units: 4.5
- Lec Hrs: 4
- Lec Load: .089
- Lab Hrs: 1.5
- Lab Load: .024
- Total Load: .113
- Seat Ct: 40
- (mkct 6/3/25)

Req/Adv

Prerequisite(s):

No Value

Corequisite(s):

No Value

Advisory(ies):

No Value

Advisory(ies) - Other:

No Value

Limitation(s) on Enrollment:

No Value

Limitation(s) on Enrollment - Other:

No Value

Entrance Skills(s):

No Value

Entrance Skill(s) - Other:

No Value

General Course Statement(s):

No Value

General Course Statement(s) - Other:

No Value

A-Matrix Form

EWRT D001A or EWRT D01AH or ESL D005. If this is the requisite for the course, complete the objective(s) below. If this requisite is being removed, provide an explanation as to why.

No Value

Objective 1: Analyze college level texts and discourse that are culturally and rhetorically diverse.

No Value

Objective 2: Compose essays drawn from personal experience and assigned texts.

No Value

Objective 3: Utilize MLA guidelines to format essays, cite sources, and compile a works cited page.

No Value

Objective 4: Create syntactically varied sentences that are free of mechanical errors.

No Value

Objective 5: Distinguish, compare, and evaluate the multiplicity and ambiguity of perspectives.

No Value

B-Matrix Form

ESL D272. and ESL D273., or ESL D472. and ESL D473., or eligibility for EWRT D001A or EWRT D01AH or ESL D005. If this is the requisite for the course, complete the objective(s) below. If this requisite is being removed, provide an explanation as to why.

No Value

Objective 1: Analyze a variety of college-level texts with a focus predominantly on expository and argumentative writing.

No Value

Objective 2: Develop analytical ideas and topics for essays.

No Value

Objective 3: Compose and support thesis statements for analytical essays.

No Value

Objective 4: Develop clear sequential relationship between central argument/controlling idea and supporting ideas in writing.

No Value

Objective 5: Identify and practice writing for different audiences and purposes.

No Value

Objective 6: Develop and demonstrate a variety of rhetorical strategies to develop strong analysis in essays.

No Value

Objective 7: Demonstrate writing as a multi-step process including attention to planning and revision.

No Value

Objective 8: Practice composing organized, developed, analytical essays that increase in complexity.

No Value

Objective 9: Demonstrate appropriate grammar usage and mechanics.

No Value

C-Matrix Form

ESL D261. and ESL D265., or ESL D461. and ESL D465., or eligibility for EWRT D001A or EWRT D01AH or ESL D005. If this is the requisite for the course, complete the objective(s) below. If this requisite is being removed, provide an explanation as to why.

No Value

Objective 1: Create compositions about fiction and non-fiction texts from many cultural and social perspectives in a variety of genres.

No Value

Objective 2: Compose a focused, purposeful, developed paper of 500 words or more that engages with, responds to, or is inspired by written or visual texts.

No Value

Objective 3: Produce written work using a cyclical process of multiples drafts and revisions.

No Value

Objective 4: Demonstrate the ability to include a variety of sentence structures in writing.

No Value

Objective 5: Edit compositions to correct errors in the major conventions of Standard Written English.

No Value

D-Matrix Form

Intermediate algebra or equivalent (or higher), or appropriate placement beyond intermediate algebra. If this is the requisite for the course, complete the objective(s) below. If this requisite is being removed, provide an explanation as to why.

No Value

Objective 1: Plan, implement, and assess work cycles, at the problem, lesson, module, and course level, to develop self-efficacy through the practice of self-regulated learning.

No Value

Objective 2: Investigate the use of mathematics in real world.

No Value

Objective 3: Explore functions.

No Value

Objective 4: Develop linear function models.

No Value

Objective 5: Use systems of two linear equations to solve real world problems.

No Value

Objective 6: Use linear inequalities in one variable to solve real world problems.

No Value

Objective 7: Examine exponential expressions and develop exponential function models.

No Value

Objective 8: Examine logarithmic expressions and develop logarithmic function models.

No Value

Objective 9: Develop quadratic function models to solve problems.

No Value

Objective 10: Investigate the characteristics of rational expressions.

No Value

Objective 11: Develop skills to work with radical expressions.

No Value

E-Matrix Form

Elementary algebra or equivalent (or higher), or appropriate placement beyond elementary algebra. If this is the requisite for the course, complete the objective(s) below. If this requisite is being removed, provide an explanation as to why.

No Value

Objective 1: Develop, throughout the course as applicable, systematic problem-solving methods.

No Value

Objective 2: Explore the function concept algebraically, numerically, verbally and graphically.

No Value

Objective 3: Explore the graphical and numerical characteristics of linear relationships and describe their meaning in the context of a problem.

No Value

Objective 4: Develop linear function models to solve problems.

No Value

Objective 5: Use systems of two linear equations to solve real-world problems.

No Value

Objective 6: Explore the graphical and numerical characteristics of quadratic relationships and describe their meaning in the context of a problem.

No Value

Objective 7: Develop quadratic function models to solve problems.

No Value

Objective 8: Use inequalities to solve real world problems.

No Value

Objective 9: Explore arithmetic sequences and series.

No Value

Objective 10: Investigate, throughout the course as applicable, how mathematics has developed as a human activity around the world.

No Value

F-Matrix Form

Pre-algebra or equivalent (or higher), or appropriate placement beyond pre-algebra. If this is the requisite for the course, complete the objective(s) below. If this requisite is being removed, provide an explanation as to why.

No Value

Objective 1: Develop, throughout the course as applicable, systematic problem solving methods.

No Value

Objective 2: Solve problems involving arithmetic operations, including fractions, percents and decimals.

No Value

Objective 3: Apply the order of operations to evaluate signed numerical expressions.

No Value

Objective 4: Solve problems involving operations with signed numbers.

No Value

Objective 5: Explore the characteristics and properties of real numbers.

No Value

Objective 6: Use estimation to determine approximate solutions and to check the reasonableness of answers.

No Value

Objective 7: Explore rates and ratios and use proportions to solve problems.

No Value

Objective 8: Explore, as applicable throughout the course, the geometry of mathematical measurements and solve problems involving geometric figures and formulas.

No Value

Objective 9: Explore the use of variables in expressions and evaluate algebraic expressions.

No Value

Objective 10: Solve linear equations in one variable numerically and algebraically.

No Value

Objective 11: Graph linear relationships on a Cartesian coordinate by plotting ordered pairs.

No Value

Objective 12: Investigate, throughout the course as applicable, how mathematics has developed as a human activity around the world.

No Value

G-Matrix Form

If the requisite does not fall under an A-F Matrix and is being removed, provide an explanation as to why.

No Value

If the requisite does not fall under an A-F Matrix and is being retained/added, download the Content Review Matrix G from the Reference Materials, and follow the remaining instructions on the form. Reminder that: an "OR" conjunction statement requires ONE representative G-Matrix; an "AND" conjunction statement requires a separate G-Matrix for EACH course.

No Value

H-Matrix Form

Objective 1: For entrance into a CTE program such as Nursing, AUTO, APRN, etc... list the prerequisite(s) to participate in the program.

No Value

Objective 2: For Student Cohorts, such as Honors, Puente, performance groups, intercollegiate teams, Special Projects course, etc... list the prerequisite(s) to participate in the cohort.

No Value

Objective 3: For Prerequisites based on Government/Licensing/Certification Regulations, or legal requirements, cite the regulation that mandates a prerequisite or attach a copy of it to this form.

No Value

Objective 4: For Requirements based on Health and Safety, describe the specific skills, concepts, and information without which the students would create a hazard to themselves or those around them. Also describe how students will meet those skills.

No Value

Objective 5: For Entrance Skills that are necessary for taking the course, describe the specific skills and the reason they are necessary for this course. Also describe how students will meet those skills.

No Value

Objective 6: For other Limitations on Enrollment not covered above, indicate the limitation on enrollment and the reason it is necessary for this course. Also describe how students will be able to meet the requirement.

No Value

De Anza GE Form

Criteria 1: Present core concepts and scope that define the discipline. (ONLY using the Outline, Assignments or Methods of Evaluation areas, cite, copy and paste the area referenced.)

No Value

Criteria 2: Foster oral and written communication and collaborative exercises. Note that this criteria has three separate pieces: oral communication, written communication, and collaborative exercises. (ONLY using the Outline, Assignments or Methods of Evaluation areas, cite, copy and paste the area referenced.)

No Value

Criteria 3: Stimulate critical thinking. (ONLY using the Outline, Assignments or Methods of Evaluation areas, cite, copy and paste the area referenced.)

No Value

Criteria 4: Include diverse perspectives and contributions in the discipline such as: gender, culture, values, and/or societal perspectives. (ONLY using the Outline, Assignments or Methods of Evaluation areas, cite, copy and paste the area referenced.)

No Value

Criteria 5: Provide global and historical context. (ONLY using the Outline, Assignments or Methods of Evaluation areas, cite, copy and paste the area referenced.)

No Value

Criteria 6: Use real-world or hands-on applications that will provide a context for the concepts being discussed. (ONLY using the Outline, Assignments or Methods of Evaluation areas, cite, copy and paste the area referenced.)

No Value

Comments

Stage 2: Department Chair

No Value

Stage 3: Division Curriculum Representative

No Value

Stage 4: Division Dean

No Value

Stage 5: SLO Coordinator

No Value

Stage 7: Content Review Matrix Liaison

No Value

Stage 8: Dean of Online Learning

No Value

Stage 9: Articulation Officer

No Value

Stage 10: De Anza General Education

No Value

Stage 13: Curriculum Committee

No Value

CO

Sort ID (00 < 10; 0 < 100)

CIS 067

Course Status

New

Course Characteristics

- CTE

Cross-Listed/Related Course Information

- NA

Cross-Listed/Related Course ID's

No Value

DL Approval Date (MM/DD/YYYY)

06/17/2025

Hybrid Approval Date (MM/DD/YYYY)

06/17/2025

Curriculum Office Notes

No Value