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Artificial Intelligence BS

IU Indianapolis School of Engr & Tech (ENGR)

Career Options | Financial Aid Options

Student's Catalog Year: Fall 2022–Fall 2024
Total Degree Map Credits: 120

Description: This BS in AI degree program will provide a solid foundational, as well as comprehensive education on AI and related technologies. Students graduating from this program will be able to develop intelligent agents that are part of autonomous systems mimicking human behavior capable of performing tasks autonomously, and intelligently. Development of real-life agents requires two complementary skills: first, perception, learning algorithms, and intelligent decision making from data, and the second skill is using the intelligence to control hardware or software in an application field for performing autonomous actions. The Intelligent Control & Systems concentration will prepare AI engineers with ability to integrate AI technologies to applicati... more

C **Critical Courses:** Courses that students should complete by specific points during their degree or certificate program.

M **Milestones:** Conditions or activities that students should complete by specific points during their degree or certificate program.

Completing a critical course or milestone by the associated term is considered crucial to on-time graduation.

Year One
(33 credits)

Fall Term	Minimum Grade	Credits
ENGR 12500 - First Year Seminar for Engineering Majors C **Critical Course** **Required Semester of Completion:** Year 1, Fall	C-	1
AIE 10000 - Introduction to Artificial Intelligence **Required Semester of Completion:** Year 1, Fall	C-	3
MATH 16500 - Analytical Geometry and Calculus I C **Critical Course** **Course Details:** P: MATH 15300 AND MATH 15400 with a grade of C or better OR P: MATH 15900 with a grade of C or better OR P: Placement into MATH 16500 **Required Semester of Completion:** Year 1, Fall	C-	4

Spring Term	Minimum Grade	Credits
MATH 16600 - Analytic Geometry and Calculus II **Course Details:** P: MATH 16500 with a C or better **Required Semester of Completion:** Year 1, Spring	C-	4
ECE 26300 - Introduction to Computing in EE **Course Details:** C: MATH 16500 AND P: 2nd Semester in College or Later AND C: ECE 26100 **Required Semester of Completion:** Year 1, Spring	C-	3
ECE 26100 - Introduction to Computing Lab **Course Details:** C: MATH 16500 AND P: 2nd Semester in College or Later AND C: ECE 26300 **Required Semester of Completion:** Year 1, Spring	C-	1
ECE 29500 - Python for Engineers	C-	1

MATH 17100 - Multidimensional Mathematics	C-	3

Course Details: P: MATH 15300 AND MATH 15400 with a C or better OR P: MATH 15900 with a C or better OR P: Placement into MATH 17100
Required Semester of Completion: Year 1, Fall

COMM-R 110 - Fundamentals of Speech Communication C	C-	3

Critical Course
Required Semester of Completion: Year 1, Fall

ENG-W 131 - Elementary Composition I	C-	3

Required Semester of Completion: Year 1, Fall

Total 17

Course Details: C: ECE 26300 and ECE 26100 (taken prior or simultaneously) AND P: MATH 16500 and MATH 17100
Required Semester of Completion: Year 1, Spring

PHYS 15200 - Mechanics	C-	4

Course Details: P: MATH 16500 C: MATH 16600
Required Semester of Completion: Year 1, Spring

PSY-B 110 - Introduction to Psychology	C-	3

Required Semester of Completion: Year 1, Spring

Total 16

Year Two
(31 credits)

Fall Term	Minimum Grade	Credits
AIE 20000 - Introductory Data Science	C-	3

Course Details: P: ECE 26300, ECE 26100, AND ECE 29500(Python)
Required Semester of Completion: Year 2, Fall

MATH 26100 - Multivariate Calculus	C-	4

Course Details: P: MATH 16500, MATH 16600 AND MATH 17100 all with a grade of C- or better
Required Semester of Completion: Year 2, Fall

MATH 26600 - Ordinary Differential Equations	C-	3

Course Details: P: MATH 16500, MATH 16600, and MATH 17100 all with a C- or better.
Required Semester of Completion: Year 2, Fall

CSCI 24000 - Computing II	C-	4

Course Details: P: ECE 26300 and ECE 26100
Required Semester of Completion: Year 2, Fall

CSCI 34000 - Discrete Structures	C-	3

Course Details: P: ECE 26300 and ECE 26100
Required Semester of Completion: Year 2, Fall

Total	**17**

Spring Term	Minimum Grade	Credits
ECE 29500 - System Fundamentals for Intelligent Control	C-	1
Course Details: P: PHYS 15200 AND C: ECE 20400 **Required Semester of Completion:** Year 2, Spring		
ECE 20400 - Introduction to Electrical and Electronic Circuits	C-	4
Course Details: P: PHYS 15200 **Required Semester of Completion:** Year 2, Spring		
ECE 35900 - Data Structures	C-	3
Course Details: P: ECE 26300 and ECE 26100 **Required Semester of Completion:** Year 2, Spring		
ECE 32700 - Engineering Economics	C-	3
Required Semester of Completion: Year 2, Spring		
Linear Algebra Requirement	C-	3
Course Details: P: MATH 16500, MATH 16600, and MATH 17100 within the last 3 semesters. **Required Semester of Completion:** Year 2, Spring		
Total		**14**

Year Three
(30 credits)

Fall Term	Minimum Grade	Credits
AIE 30000 - Introduction to Artificial Intelligence - Human Computer Focus	C-	3
Required Semester of Completion: Year 3, Fall		
ECE 30200 - Probabilistic Methods in Electrical and Computer Engineering	C-	3
Course Details: P: ECE 20400 AND ECE 29500(Systems Fundamental for Intelligent Controls) **Required Semester of Completion:** Year 3, Fall		
ECE 36200 - Microprocessor Systems and Interfacing	C-	4

Spring Term	Minimum Grade	Credits
Controls or Systems Elective	C-	3
Course Details: Students should choose between ECE 38200 (for a Controls focus) or ECE 47100 (for a Systems focus) **Required Semester of Completion:** Year 3, Spring **Course Notes:** ECE- 38200: P: ECE 29500(Systems Fundamental for Intelligent Controls) ECE- 47100: P: ECE 36200 AND ECE 35900		
Algorithms Elective	C-	3
Course Details: P: ECE 35900 AND CSCI 34000 **Course Notes:** ECE- 49500: Algorithms		

Course Details: P: ECE 20400 AND ECE 35900
Required Semester of Completion: Year 3, Fall

Elective Course from List C or List E	C-	3

Course Details: Students should select courses from List C(if pursuing Controls courses) or List E(if pursuing Systems courses). See advisor to confirm your selections.
Required Semester of Completion: Year 3, Fall

Intelligent Control & Systems Elective	C-	3

Required Semester of Completion: Year 3, Fall

Total 16

Elective Course from List A or List D	C-	3

Course Details: Students pursuing Controls electives should select a course from List A. Students pursuing Systems electives should select a course from List D. Discuss selections with an advisor.
Required Semester of Completion: Year 3, Spring

TCM 36000 - Communication in Engineering Practice		2

Course Details: P: ENG-W 131 AND COMM-R 110
Required Semester of Completion: Year 3, Spring

General Education Cultural Understanding Elective		3

Required Semester of Completion: Year 4, Spring

Civics Literacy Requirement Reminder M

Milestone Details: In June 2021, the Purdue University Board of Trustees adopted a civics literacy graduation requirement for undergraduates, including all transfer students, to enhance the educational experience of students and to graduate a more informed citizenry. Students admitted to an IUPUI Purdue program beginning Fall 2022 must complete this requirement. You can see the full details of this requirement at this link: http://due.iupui.edu/civics-literacy
Required Semester of Completion: Year 3, Spring

Total 14

Year Four
(26 credits)

Fall Term	Minimum Grade	Credits
AIE 40000 - Recent Trends in Artificial Intelligence	C-	3

Required Semester of Completion: Year 4, Fall

AIE 40100 - Artificial Intelligence Ethics	C-	1

Required Semester of Completion: Year 4, Fall

Elective Course from List A or List D	C-	3

Spring Term	Minimum Grade	Credits
ECE 49500 - Capstone	C-	3

Course Details: P: ECE 36200, Algorithm Elective, and (ECE 47100 or ECE 38200)
Required Semester of Completion: Year 4, Spring

Elective Course from List C or List E	C-	3

Course Details: Students should select courses from List C(if pursuing Controls courses) or List E(if pursuing Systems courses). See advisor to confirm your selections.
Required Semester of Completion: Year 3, Fall

Course Details: Students pursuing Controls electives should select a course from List A. Students pursuing Systems electives should select a course from List D. Discuss selections with an advisor.
Required Semester of Completion: Year 3, Spring

Elective Course from List B		3

Required Semester of Completion: Year 4, Fall

ECE 49500 - Robotics	C-	3

Required Semester of Completion: Year 4, Fall

Total 13

Intelligent Control & Systems Elective	C-	1

Required Semester of Completion: Year 3, Fall

General Education Life and Physical Sciences Elective		3

Course Details: Students must take 3 credits of courses from the IUPUI General Education Life and Physical Sciences Elective List.
Required Semester of Completion: Year 4, Spring

General Education Arts and Humanities Elective		3

Course Details: Students must take 3 credits of courses from IUPUI's General Education Arts and Humanities Elective List.
Required Semester of Completion: Year 4, Spring

Total 13

Degree Map Link: https://sisjee.iu.edu/sisigps-prd/web/igps/dm/public/maps/view?mapId=00fdee28-6c64-4f2e-adbf-12777d3e5925 Copy

Achieving minimum grades for individual courses may not result in meeting cumulative GPA requirements for admission to programs or for graduation. Verify requirements with your academic advisor or your Academic Advisement Report (AAR).

Completing 30 credit hours each calendar year is required for full state financial aid eligibility. Be sure to complete your FAFSA before March 10 each year. If you follow your map and find a course unavailable, you may be eligible to take that course for free in a future semester.

More information about the free course guarantee.