AI Roboto EDU

1275 El Camino Real, Menlo Park, CA 94025-4284
Office: (323) 413-8128
www.airobotoedu.com

Course Catalog

Catalog of Courses
Period Covered by the Catalog
January 1, 2026 to December 31, 2026

ABOUT AI ROBOTO EDU

AI Roboto EDU (AIRE) is a private institution approved to operate by the California Bureau for Private Postsecondary Education (Bureau) . Approval to operate by the Bureau means that AIRE is compliant with the minimum state standards contained in the California Private Postsecondary Education Act of 2009 (as amended) and Division 7.5 of Title 5 of the California Code of Regulations. Approval does not mean that the Bureau endorses AIRE programs or that the Bureau's approval means the institution exceeds minimum state standards.

AIRE will be an institution that builds educational programs designed to allow students to demonstrate they have acquired the competencies (levels of knowledge, skill, or ability) required for a particular certificate. AIRE students will have the opportunity to develop the skills in artificial intelligence and robotics to meet the workforce needs of the knowledge economy.

In "The Great Upheaval" published in 2021, Arthur Levine and Scott Van Pelt stated:

> *The shift from an industrial to a knowledge economy has revolutionary implications for higher education because industrial economies are rooted in fixed time and processes and knowledge economies are grounded in fixed outcomes.*
>
> *The knowledge economy college does not yet exist. But this is what we can anticipate. The most fundamental change, which deceptively sounds like a rhetorical flourish, would be a shift in higher education's focus from teaching, the process by which we educate, to learning, the outcomes of that education, from a focus on the teacher to a focus on the learner.*

We created AIRE based on beliefs consistent with what was stated by these authors and many other scholarly writers on the subject of the knowledge economy. While remaining compliant with the Bureau's rules and those of other applicable entities, AIRE will evolve and adapt as will the skills students will need to meet the workforce needs for workers skilled in artificial intelligence (AI) and robotics. AIRE will expose students to workforce experiences throughout their academic program through approaches such as:

- Work-based learning,
- Professional networking,
- Coaching services
- Personality assessments

Institutional Mission and Objectives

Be a Learner-focused institution with educational and work-based programs (including hands-on experiences) that evolve to stay aligned with the workforce needs of the knowledge economy in the area of artificial intelligence and robotics.

PURPOSE

Help address the need for more workers with the education and hands-on work experience needed to fill the jobs in the knowledge economy specifically in the area of artificial intelligence and robotics.

Instructional Location

AIRE delivers instruction on-line. AIRE does not have a physical campus for students.
AIRE has an administrative office at
1275 El Camino Real
Menlo Park, CA 94025-4284

HOURS OF OPERATION.

AIRE staff can be reached by email and phone Monday to Sunday 7 AM to 7PM MT. Students can schedule appointments a day in advance with AIRE personnel anytime if needed.
AIRE will be closed for the following holidays.

New Year's Day
Martin Luther King Jr. Day
Washington's Birthday
Cesar Chavez Day
Memorial Day
Independence Day
Labor Day
Veterans Day

Description of the Facilities & Type of Equipment Used for Instruction

AIRE will not have facilities where students will receive instruction. AIRE administration facilities for staff will be well-maintained, and maintain all valid permits required by any public agencies related to health and safety of the institution's facilities and equipment on file, and such permits shall be available to the Bureau upon request.
Students will require a laptop or desktop computer with broadband Internet access (DSL, cable or other).
System Recommendations

Operating Systems: Mac OS 10.2 or higher, Windows 10 or higher
8 GB RAM minimum
1 TB hard drive or equivalent
Web Browser: Chrome, Internet Explorer 8.0 or higher, Firefox 3.0 or higher, Safari 4.0 or higher
Email: Outlook, Outlook Express, Mac Mail, Eudora, Entourage, Hotmail., Gmail, Yahoo
Microsoft Word, Excel, PowerPoint is recommended for optimal performance.

Our administrative office is located in a 3 room, 3 story townhouse with over 1,550 square feet of space.

The institution uses a learning management system that is available to students after they log in on www.airobotoedu.com. Course videos, Winspform and Google Colab are embedded on the website for students to work on projects and for instructors to review and assess student work.
Computer Hardware –

- Operating Systems: Mac OS 10.2 or higher, Windows 10 or higher
- 8 GB RAM minimum
- 1 TB hard drive or equivalent
- Web Browser: Chrome, Internet Explorer 8.0 or higher, Firefox 3.0 or higher, Safari 4.0 or higher
- Email: Outlook, Outlook Express, Mac Mail, Eudora, Entourage, Hotmail., Gmail, Yahoo
- Microsoft Word, Excel, PowerPoint is recommended for optimal performance.

Library Resources

No formal library is needed to meet the instructional needs of the students. General library materials would not be compatible with the objectives of this program as the acquisition of specialized knowledge and hands-on-skills are the essential elements for completion of the

programs offered. Students are provided with access to the LMS upon enrollment into the program, which is where our digital learning resources are maintained. The learning resources available in the LMS are sufficient to support the instructional needs of the students since they provide current information related to Artificial Intelligence. Additional supplemental learning resources provided include access to specially selected internet sources of information which support the learning objectives of the programs offered. Staff members are also available to provide research assistance. A sample of additional supplemental links that are provided to students is below.
https://www.techopedia.com/2/31572/trends/5-defining-qualities-of-robots
https://www.techopedia.com/the-role-of-knowledge-graphs-in-artificial-intelligence/2/34517
https://www.techopedia.com/the-iot-technologies-making-industry-40-real/2/34555
https://www.techopedia.com/5-crucial-skills-that-are-needed-for-successful-ai-deployments/2/34513

NOTICE CONCERNING TRANSFERABILITY OF CREDITS AND CREDENTIALS EARNED AT OUR INSTITUTION

The transferability of credits you earn at AI Roboto EDU is at the complete discretion of an institution to which you may seek to transfer. Acceptance of the certificate you earn in the programs is also at the complete discretion of the institution to which you may seek to transfer. If the certificate that you earn at this institution is not accepted at the institution to which you seek to transfer, you may be required to repeat some or all of your coursework at that institution. For this reason you should make certain that your attendance at this institution will meet your educational goals. This may include contacting an institution to which you may seek to transfer after attending AI Roboto EDU to determine if your certificate will transfer."

Admissions Policies & Recognition of Credits

AIRE requires a student to complete an application for admissions and submit an official transcript(s) from postsecondary institutions you have previously attended. There is no application fee for the admissions application. Applications for admission are available online and accepted year-round.
AIRE does not require standardized testing for admissions because for many students standardized tests can bring anxiety and be a large barrier from pursuing an educational objective.
Students are required to complete an Enrollment Agreement as part of their enrollment process. As a prospective student, you are encouraged to review this catalog prior to signing an Enrollment Agreement. You are also encouraged to review the School Performance Fact Sheet prior to signing an Enrollment Agreement.
Students will be considered for admission without regard to race, creed, color, ethnicity, religion, background, native origin, physical disability, or sexual orientation.
AIRE has not entered into an articulation or transfer agreement with any other college.
AIRE will not admit students under the ability to benefit rules.

ADMISSION REQUIREMENTS

A bachelor's degree from an accredited institution. An accredited institution is one that is recognized by the United States Department of Education (ED) or the Council for Higher Education Accreditation (CHEA). Academic degrees obtained outside of the United States will be accepted if they have been evaluated by a nationally recognized credentialing service such as the National Association of Credential Evaluation Services (NACES). In this case, the listed U.S. degree equivalency will be used.

AIRE is committed to providing an equitable and accessible experience for all applicants. We value a diverse community, and therefore our admissions policies are designed to attract students with a variety of backgrounds and experiences. Candidates for admission are evaluated holistically based on their merits and potential to succeed at AIRE. For admissions decisions, we use information from academic performance, work experience, individual skills, and a personal interview.
Student applications are not reviewed until the application is 100% completed and the (non-refundable) application fee has been paid.
Meeting basic admissions criteria does not guarantee acceptance. In addition, AIRE reserves the right to deny or revoke acceptance to candidates at any moment if a candidate is found submitting falsified and/or misleading documentation, participates in academic dishonesty, plagiarism, or illegal/criminal activity. Should a student be notified of a denial or revocation of admission, the student is eligible to reapply six (6) months after their initial application.
Upon being accepted (including conditional acceptance), the student must register and enroll in a course for the applied term. If a student has not registered and enrolled in a course within six months from the date of acceptance, the student's acceptance status will be revoked. Students must then reapply and repeat the admissions process.
Students who apply, but do not meet the eligibility requirements, will receive a letter of denial within thirty (30) days of applying.
Transfer Applicants. AIRE does not award credit for credits earned at other institutions. In addition, AIRE does not award credit for prior experiential learning, challenge examinations, or achievement tests.

Visa Related Services

This institution does not admit students from other countries, so no visa related services are offered.

Language Proficiency

The following apply to students for whom English is not their primary language and will be taught in English.
For a student whose high school or equivalent coursework was not completed in English, and for whom English was not a primary language, the student must attain a qualifying score of 97 on the Combined English Language Skills Assessment (CELSA) placement test. This requirement does not apply to students who have received their high school diploma or the equivalent at an academic institution which has provided the instruction in the English language. Similarly, this requirement does not apply to students who have completed coursework, in English, at the college level.

Language of Instruction

Instructions will be given in no language other than English.

English as a Second Language Instruction

This institution does not provide ESL instruction.

Accreditation Status

This institution is not accredited by an accrediting agency recognized by the United States Department of Education. A student enrolled in an unaccredited institution is not eligible for federal financial aid.

STRF Disclosure

Student Tuition Recovery Fund Disclosures.
"The State of California established the Student Tuition Recovery Fund (STRF) to relieve or mitigate economic loss suffered by a student in an educational program at a qualifying institution, who is or was a California resident while enrolled, or was enrolled in a residency program, if the student enrolled in the institution, prepaid tuition, and suffered an economic loss. Unless relieved of the obligation to do so, you must pay the state-imposed assessment for the STRF, or it must be paid on your behalf, if you are a student in an educational program, who is a California resident, or are enrolled in a residency program, and prepay all or part of your tuition.
You are not eligible for protection from the STRF and you are not required to pay the STRF assessment, if you are not a California resident, or are not enrolled in a residency program."
"It is important that you keep copies of your enrollment agreement, financial aid documents, receipts, or any other information that documents the amount paid to the school. Questions regarding the STRF may be directed to the Bureau for Private Postsecondary Education, 1747 N. Market Blvd., Suite 225, Sacramento, CA 95834, (916) 574-8900 or (888) 370-7589.

To be eligible for STRF, you must be a California resident or are enrolled in a residency program, prepaid tuition, paid or deemed to have paid the STRF assessment, and suffered an economic loss as a result of any of the following:
1. The institution, a location of the institution, or an educational program offered by the institution was closed or discontinued, and you did not choose to participate in a teach-out plan approved by the Bureau or did not complete a chosen teach-out plan approved by the Bureau.
2. You were enrolled at an institution or a location of the institution within the 120 day period before the closure of the institution or location of the institution, or were enrolled in an educational program within the 120 day period before the program was discontinued.
3. You were enrolled at an institution or a location of the institution more than 120 days before the closure of the institution or location of the institution, in an educational program offered by the institution as to which the Bureau determined there was a significant decline in the quality or value of the program more than 120 days before closure.
4. The institution has been ordered to pay a refund by the Bureau but has failed to do so.
5. The institution has failed to pay or reimburse loan proceeds under a federal student loan program as required by law, or has failed to pay or reimburse proceeds received by the institution in excess of tuition and other costs.
6. You have been awarded restitution, a refund, or other monetary award by an arbitrator or court, based on a violation of this chapter by an institution or representative of an institution, but have been unable to collect the award from the institution.
7. You sought legal counsel that resulted in the cancellation of one or more of your student loans and have an invoice for services rendered and evidence of the cancellation of the student loan or loans.

To qualify for STRF reimbursement, the application must be received within four (4) years from the date of the action or event that made the student eligible for recovery from STRF.

A student whose loan is revived by a loan holder or debt collector after a period of noncollection may, at any time, file a written application for recovery from STRF for the debt that would have otherwise been eligible for recovery. If it has been more than four (4) years since the action or event that made the student eligible, the student must have filed a written application for recovery within the original four (4) year period, unless the period has been extended by another act of law.

However, no claim can be paid to any student without a social security number or a taxpayer identification number.

Privacy Act

It is this institution's intent to carefully follow the rules applicable under the Family Education Rights and Privacy Act. It is our intent to protect the privacy of a student's financial, academic and other school records. We will not release such information to any individual without having first received the student's written request to do so, or unless otherwise required by law.

Student Conduct

Students are expected to behave professionally and respectfully at all times. Students are subject to dismissal for any inappropriate or unethical conduct or for any act of academic dishonesty. Students are expected to dress and act accordingly while attending this institution. At the discretion of the school administration a student may be dismissed from school for reasons including, but not limited to:

- Coming to class in an intoxicated or drugged state.
- Possession of drugs or alcohol on campus.
- Possession of a weapon on campus.
- Behavior creating a safety hazard to other person(s).
- Disobedient or disrespectful behavior to other students, an administrator or instructor.
- Stealing or damaging the property of another.

Any students found to have engaged in such conduct will be asked to leave the premises immediately. Disciplinary action will be determined by the Chief Executive Officer of this institution and such determination will be made within 10 days after meeting with both the chair of the department in which the student is enrolled and the student in question.

Nondiscrimination Policy

This institution is committed to providing equal opportunities to all applicants to programs and to all applicants for employment. Therefore, no discrimination shall occur in any program or activity of this institution, including activities related to the solicitation of students or employees on the basis of race, color, religion, religious beliefs, national origin, sex, sexual orientation, marital status, pregnancy, age, disability, veteran's status, or any other classification that precludes a person from consideration as an individual. Please direct any inquiries regarding this policy, if any, to the Chief Operations Officer who is assigned the responsibility for assuring that this policy is followed.

Academic Freedom

AI Roboto EDU is committed to assuring full academic freedom to all faculty. Confident in the qualifications and expertise of its faculty members, the college encourages its faculty members to exercise their individual judgments regarding the content of the assigned courses, organization of topics and instructional methods, providing only that these judgments are made within the context of the course descriptions as currently published, and providing that the instructional methods are those official sanctioned by the institution, methods for which the institution has received oversight approval.

AI Roboto EDU encourages instructors and students to engage in discussion and dialog. Students and faculty members alike are encouraged to freely express views, however controversial, as long as they believe it would advance understanding in their specialized discipline or sub-disciplines.

Sexual Harassment

This institution is committed to providing a work environment that is free of discrimination, intimidation and harassment. In keeping with this commitment, we believe that it is necessary to affirmatively confront this subject and express our strong disapproval of sexual harassment. No one associated with this institution may engage in verbal abuse of a sexual nature; use sexually degrading or graphic words to describe an individual or an individual's body; or display sexually suggestive objects or pictures at any facility or other venue associated with this institution. Students are responsible for conducting themselves in a manner consistent with the spirit and intent of this policy.

Student's Right to Cancel

The student has the right to cancel the enrollment agreement and obtain a refund of charges paid through attendance at the first class session, or the seventh day after enrollment, whichever is later. A notice of cancellation for the current term or from the school shall be in writing and submitted to the school administrative office. Cancellation or withdrawal is effective on the date written notice is sent to the school administrative office at 1275 El Camino Real, Menlo Park, CA 94025-4284 or by email to contact@airobotoedu.com. If the student has received federal student financial aid funds, the student is entitled to a refund of money not paid from federal student financial aid program funds.

A withdrawal for the current term or from the school may be effectuated by the student's written notice or by the student's conduct, including, but not necessarily limited to, a student's lack of attendance. The institution shall refund 100 percent of the amount paid for institutional charges, less a reasonable registration fee.

The institution shall issue a refund for unearned institutional charges if the student cancels an enrollment agreement or withdraws during a period of attendance. The refund policy for students who have completed 60 percent or less of the period of attendance shall be a pro rata refund. The institution shall pay or credit refunds within 45 days of a student's cancellation or withdrawal.

Refund Policy

If the student cancels an enrollment agreement or withdraws during a period of attendance, the refund policy for students who have completed 60 percent or less of the period of attendance shall be a pro rata refund. A pro rata refund pursuant to section 94919(c) or 94920(d) or 94927 of the code shall be no less than the total amount owed by the student for the portion of the educational program provided subtracted from the amount paid by the student, calculated as follows:

The amount owed equals the daily charge for the program (total institutional charge, divided by the number of days or hours in the program), multiplied by the number of days the student attended, or was scheduled to attend, prior to withdrawal.

For purposes of determining a refund, a student shall be considered to have withdrawn from an educational program when he or she withdraws or is deemed withdrawn in accordance with the withdrawal policy stated in this institution's catalog.

If an institution has collected money from a student for transmittal on the student's behalf to a third party for a bond, library usage, or fees for a license, application, or examination and the institution has not paid the money to the third party at the time of the student's withdrawal or cancellation, the institution shall refund the money to the student within 45 days of the

student's withdrawal or cancellation. If the student has received federal student financial aid funds, the student is entitled to a refund of money not paid from federal student financial aid program funds. This institution shall refund any credit balance on the student's account within 45 days after the date of the student's completion of, or withdrawal from, the educational program in which the student was enrolled.

Policies and Procedures Regarding Financial Aid

This institution does not participate in any federal or state financial aid programs. A student enrolled in an unaccredited institution is not eligible for federal financial aid programs.

Financial Aid Disclosures

The institution does provide financial aid directly to its students in the form of a monthly payment plan. No interest is charged, however late fees apply for late payments two or more days delinquent. All financial arrangements must be made before the beginning of classes. The institution will contact students who are delinquent in paying tuition and fees. They will be encouraged to make specific arrangements with the institution in order to remove their delinquency and remain in good financial standing.

Grades and Standards for Student Achievement - Satisfactory Progress

COMPETENCY-BASED EDUCATION

AIRE will be an online institution with competency-based certificate programs. This means AIRE will measure what a student knows and can do, not how much time is spent in a classroom. Our instructors will engage in regular and substantive interaction with every individual student. Instructors will respond within 10 days of receipt of student lessons or projects. Our students will engage in educational activities to include but not limited to:

- participating in regularly scheduled learning sessions (where there is an opportunity for direct interaction between the student and the faculty member);
- submitting an academic assignment;
- taking an exam, an interactive tutorial, and computer-assisted instruction;
- attending a study group that is assigned by the institution;
- participating in an online discussion about academic matters;
- consultations with a faculty mentor to discuss academic course content and their individual progress; and
- participation in faculty-guided independent study

Our assessments will measure how students have achieved the learning outcomes of the course and take into account feedback from potential employers of our students. Our approach should create assessments that lead to students acquiring the knowledge and skills that businesses say workers need to perform well in their jobs.

Grading System

- CR - Credit - Student fulfills the course requirements and receives academic credit toward completion of the certificate program at a level that would be the equivalent of a B or better on a letter grading system.
- NC - No Credit - Student does not fulfill the course requirements for a CR and will not receive academic credit toward completion of the certificate program.
- T - Transfer - AIRE has accepted student credits from another institution and counts toward completion of the certificate program.
- W - Withdrawn: Represents that the student was withdrawn from the institution

or course before term completion.

- D - Dropped: Verifies that the course was dropped from term registration and is not included in attempted units.
- I - Incomplete: Indicates an arrangement between the institution and the student to complete the course at a later date. The entirety of the coursework has not been completed and/or the final assessment has been deferred.

Attendance Policy

Students are expected to sign into the learning management system for synchronous instruction and participate as required in online sessions at the scheduled day and time. Students should inform the instructor prior to a class that they will not be able to attend. For asynchronous instruction, students are expected to sign into the learning management system within the time specified by the instructor for a specific assignment. AIRE will monitor the following to determine that a student has met the intent of the attendance policy.

- Student submission of an academic assignment
- Student submission of an exam
- Documented student participation in an interactive tutorial or computer-assisted instruction
- A posting by the student showing the student's participation in an online study group that is assigned by the institution
- A posting by the student in a discussion forum showing the student's participation in an online discussion about academic matters
- An email from the student or other documentation showing that the student-initiated contact with a faculty member to ask a question about an academic subject studied in the course.

Logging into a course and clicking on resources will not count as having participated. Reading discussion boards, and reading or viewing course resources, though academically important, are not measured or counted as student attendance.
Online students who do not engage through one of the activities for seven consecutive (7) calendar days will be withdrawn from the program.

Academic Probation and Dismissal Policies

The Chief Academic Officer may place a student on academic probation if the student is not making satisfactory academic progress as per this institution's published policy. The student's academic progress will be monitored at the end of each module as the grades are posted. Should the student’s pass/fail percentage fall below that required for graduation, a student may be placed on academic probation. This will result in a formal advisory, which will be sent to the student by mail, explaining the reason for the probation. If the student wishes to appeal the formal advisory, the student is to submit a written request for an administrative academic review to the school main campus:

AI Roboto EDU
1275 El Camino Real, Menlo Park, CA 94025-4284

After the completion of the current module, the student will have two additional modules to bring his or her pass/fail percentage up to or in excess of the minimum standard of the institution. Thereafter, the student's failure to achieve satisfactory academic progress may result in dismissal from the program. The Chief Academic Officer will offer assistance in locating a suitable tutor, should such service be requested by the student. Any student seeking a tutor is financially responsible for the cost of all such tutoring.

Violations of the Harassment or Discrimination Policy of this institution will become part of the student's record. Depending on the severity and/or frequency of the violation(s), the Faculty may take disciplinary action, including administrative withdrawal from the University. A student who has become subject to disciplinary action may submit an appeal to the Chief Academic Officer per the University's Grievances policy.

Leaves of Absence

It is the policy of the school to not grant a Leave of Absence to students.

Student Grievance Procedures – Student Rights

Most problems or complaints that students may have with the school or its administrators can be resolved through a personal meeting with the student's instructor or a counselor. If, however, this action does not resolve the matter to the satisfaction of the student, he/she may submit a written complaint to the main campus: AI Roboto EDU, 1275 El Camino Real, Menlo Park, CA 94025-4284. The written complaint must contain a statement of the nature of the problem, the date the problem occurred, the names of the individuals involved, copies of documents if any, which contain information regarding the problem, evidence demonstrating that the institution's complaint procedure was properly followed, and the student's signature. The student can expect to receive a written response within ten business days. The COO will verify that the student has made an attempt to resolve the incident or complaint. If the student has followed the above three steps, the COO will call a grievance session and include all of the concerned parties. Each party involved may be asked to present their version of the incident prior to all parties being present. The person against whom the complaint is filed shall receive written notice which shall include the initial report, the factual allegations, a list of witnesses and evidence. Each party involved may be asked to present their version of the incident prior to all parties being present. The COO will then issue a statement to all parties within 48 hours of the grievance meeting conclusion. If the decision is unacceptable to the student, the student must, within 48 hours, send written copies of all documents and a cover letter to the COO explaining why they believe the decision is unacceptable.. The school has the right to suspend the student until the problem is resolved if the student does not follow the proper grievance procedures.

Continued unresolved complaints may be directed to:

Bureau for Private Postsecondary Education
P.O. Box 980818
West Sacramento, CA 95798-0818
Phone: (916) 574-8900
Web site: www.bppe.ca.gov

Student Services

This institution does not provide airport reception services, housing assistance or other services. Further, this institution maintains a focus on the delivery of educational services. Should a student encounter personal problems which interfere with his or her ability to

complete coursework, this institution will provide assistance in identifying appropriate professional assistance in the student's local community but does not offer personal counseling assistance.

Placement Services

This institution does not represent to the public, in any manner, or by any means, that it offers job placement assistance.

Student Housing

This institution has no responsibility to find or assist a student in funding housing.
This institution does not operate dormitories or other housing facilities. This institution does not provide assistance nor does it have any responsibility to assist students in finding housing. Housing in the immediate area is available in two story walkup and garden apartments. Monthly rent for a one bedroom unit is approximately $1,500 a month.

Student Records and Transcripts

Student records for all students are kept for five years. Transcripts are kept permanently. Students may inspect and review their educational records. To do so, a student should submit a written request identifying the specific information to be reviewed. Should a student find, upon review, that records that are inaccurate or misleading, the student may request that errors be corrected. In the event that a difference of opinion exists regarding the existence of errors, a student may ask that a meeting be held to resolve the matter. Each student's file will contain student's records including a copy of the signed enrollment agreement, school performance fact sheet, diploma granted, transcript of grades earned, high school diploma or GED, copies of all documents signed by the student including contract, instruments of indebtedness and document related to financial aid, leave of absence documents, financial ledger, refund information as applicable, complaints received from the student or student advisories related to academic progress. Transcripts will only be released to the student upon receipt of a written request bearing the student's live signature.

Professions – Requirements for Eligibility for Licensure

None of the programs offered by the institution leads to licensure or certification

Charges: Tuition & Fees

All fees are subject to change from time to time, without notice.

Program Name: Advanced Robotics

Tuition	$8,000	
Registration Fee	$0.00	(non refundable)
STRF	$0.00	(non refundable) ($0.00 / $1,000 of institutional fees)
Books and Materials	$0.00	(non refundable except during the cancellation period)
Total charges for the current period of attendance		$8,000
Estimated total charges for the entire educational program		$8,000

Program Name: Autonomous Driving

Tuition	$12,000	
Registration Fee	$0.00	(non refundable)
STRF	$0.00	(non refundable) ($0.00 / $1,000 of institutional fees)
Books and Materials	$0.00	(non refundable except during the cancellation period)
Total charges for the current period of attendance		$12,000
Estimated total charges for the entire educational program		$12,000

Program Name: Electric Vehicle

Tuition	$12,000	
Registration Fee	$0.00	(non refundable)
STRF	$0.00	(non refundable) ($0.00 / $1,000 of institutional fees)
Books and Materials	$0.00	(non refundable except during the cancellation period)

Total charges for the current period of attendance	$12,000
Estimated total charges for the entire educational program	$12,000

Program Name: Machine Learning & Artificial Intelligence

Tuition	$8,500	
Registration Fee	$0.00	(non refundable)
STRF	$0.00	(non refundable) ($0.00 / $1,000 of institutional fees)
Books and Materials	$0.00	(non refundable except during the cancellation period)
Total charges for the current period of attendance		$8,500.00
Estimated total charges for the entire educational program		$8,500.00

Other Fees:

There will be a $35 charge for all declined scheduled credit card payments.
Educational services may be withheld from a student whose payment is more than 10 days late.
Transcript copies are available upon advance payment of $25.00 for two copies.

Faculty

Qiangyang liu
California State University at Los Angeles
Degree: Master of Science Major: Electrical Engineering
Instructor for Electric Vehicles and Advanced Robotics

Chen Lin
UCLA
Degree: Ph.D Major: Computer Science
Instructor for Autonomous Driving

Michael Barnathan
Temple University
Degree: Ph.D Major: Computer and Information Sciences
Instructor Artificial Intelligence and Machine Learning

Programs

Program Name Advanced Robotics

Program Description

This program introduces students to the fundamentals and advanced technologies regarding robotics, including robotic system design and development, robot sensing and perception, robot decision-making, robot motion planning and trajectory generation, robot control, concurrency, and real-time systems, and human learning. Considering the interdisciplinary nature of robotics, this program covers a wide range of electronics, mechatronics, physics, informatics, automation and control theory, computer vision, and artificial intelligence. This program will teach students the latest advancements in the robotics field, including robot skill learning, autonomous driving, simultaneous localization, and mapping. As an application-oriented program, this program helps students to develop hands-on skill sets on industrial robots and aerial robots. Students will develop and implement a set of techniques to solve practical problems by robots as part of their capstone project.

Objectives

Upon successful completion of this program, students will be able to:

- Understand the concepts in robotics and automation
- Apply the skills of problem-oriented sensing and actuation system design
- Understand the sensing fusion methods and conventional robot control strategies
- Navigate the entire pipeline using robots to solve real-world applications
- Understand robot skill learning techniques and implementation methods
- Understand the prevalent industrial robots

Clock Hours

96 clock hours, 10 weeks

Graduation Requirement

To complete this program a student must complete all prescribed portions of the program and earn a minimum grade of “B” and a grade of “pass” on the Class Participation Rubric and the Project Scoring Rubric.

This educational program is designed to prepare students for employment in the SOC 11-3021 classification. No Externship or Internship is Required. A Final Exam is required.

Sequential Outline of Subject Matter

Name of Modules	Description, Learning Objective & Skill Measurement	Hours
Module 1: Image Processing and Recognition System	**Description** ● This module will teach students the required algorithms and design of the computer vision related to advanced robotics. It will teach students deep learning theory, and CNN for computer vision, as well as related deep learning algorithms such as object detection, and domain adaptation. **Learning Objective** Upon successful completion of this module, students will be able to: ● Knowledgeable about image processing techniques ● Knowledgeable about the structure and function of CNN ● Knowledgeable about deep learning theory	26 clock hours in week 1-3

	● Familiar with the deep learning algorithms	
Module 2: Robotic Operating System	**Description** ● This module will teach students the design and function of the robotic operating system, including the perception, control, and planning system. It will also teach students about the deep reinforcement learning algorithm for robotic development. **Learning objective** Upon successful completion of this module, students will be able to: ● Understand the robotic system ● Understand deep reinforcement learning algorithms ● Design deep reinforcement systems for robotic development ● Understand robotic perception system ● Understand robotic control system ● Understand robotic planning system	28 clock hours in week 3-5
Module 3: Practical Courses for Robotics	**Description** ● This module will teach students the required algorithms and design of the visual perception system and motion planning. It will also teach students the control systems and statistical techniques in robotic development. **Learning objective** Upon successful completion of this module, students will be able to: ● Develop visual perception model ● Understand motion planning in robotic development ● Develop robotic control system ● Understand statistical techniques in robotic development	24 clock hours in week 6-8
Module 4: Introduction to Industrial Design	**Description** ● This module will introduce students to the essential methodology and principles for industrial design and manufacture. To fill the gap between academic knowledge and industrial experience, the students will learn about requirements development, safety analysis, system-level integration and test, product validation and verification. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Comprehensively understand system engineering principles ● Comprehensively understand safety engineering principles ● Understand system integration, test, validation, diagnosis, and troubleshooting	3 clock hours in week 9
Module 5: Common Skill Training	**Description** ● This module will teach common soft skills to students. The contents will include public speaking, presentation, leadership development, teamwork, communication skills, work effort and schedule estimation, and project management. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Proficient in preparing presentation slides	3 clock hours in week 9

	● Understand leadership development and team building ● Be familiar with communication skills ● Proficient in work effort and schedule estimation ● Be familiar with project management	
Module 6: Advanced Robotics Capstone Project	**Description** ● This module will provide students the opportunity to work on a capstone project. The capstone project is designed for students to apply the knowledge learned from the previous modules and further enhance the hands-on skills learned in this program in the real-world robotic industry. Each student is expected to design a sub-system for a real operating robotic system and realize the sub-system functionality by completing the design documentation with the learning material obtained from this program and other resources, for instance, textbooks, papers, videos, etc. ● The students need to complete sub-system design by providing design documentation: o Perform analysis on sub-system features and functionalities and derive use cases o Derive sub-system logical functions and realize functional decomposition per analysis of sub-system features o Perform analysis on logical functions, and develop functional chains to realize logical architecture o Design core system of a real robotic o Modify and test at least one of the following components of the operating system: perception, control, and planning ● The students need to validate sub-system functionalities by completing test cases: o Review sub-system requirements and draft test cases o Set up a test bench for robotics, and prepare all needed hardware and tools o Develop core operating system of a robotic o Integrate sub-system with harness on a test bench or a real robotic o Perform testing and troubleshooting per test cases **Learning Objective** Upon successful completion of this module, students will be able to: ● Apply the knowledge from this program for practice and further enhance the hands-on skills in the real-world robotic industry	12 clock hours in week 8-10

Program Name Autonomous Driving

Program Description

This program provides students with the opportunity to acquire the appropriate knowledge, skills, certificates, and experiences to compete for positions as engineers in the autonomous driving industry. This program will present students with a set of topics to provide them with the opportunity to round out their fundamental knowledge for autonomous driving. The program then includes practical courses to help students become familiar with autonomous driving-related tool. The second half of the course focuses on the core system of an autonomous driving car. Initially, students will be introduced to the image processing and recognition system to learn about core algorithms of image processing and artificial intelligence (AI) for computer vision. Students are then introduced to robotic systems including four components: localization, operating, reinforcement learning for decision, and navigation. Students then take practical courses and become familiar with robotic system tools.

Objectives

At the completion of this program the student will be able to:

- Completely understand key components of an autonomous driving car
- Understand the key tools to design and repair an autonomous driving car
- Understand deep learning and reinforcement learning
- Understand planning and navigation algorithms for autonomous driving
- Understand the structure and function of the intelligent system of an autonomous driving car
- Be able to design the core system of an autonomous driving car

Clock Hours

96 clock hours, 10 weeks

Graduation Requirement

To complete this program a student must complete all prescribed portions of the program and earn a minimum grade of "B" and a grade of "pass" on the Class Participation Rubric and the Project Scoring Rubric.

This educational program is designed to prepare students for employment in the SOC 11-3021 classification. No Externship or Internship is Required. A Final Exam is required.

Sequential Outline of Subject Matter

Name of Modules	Description, Learning Objective & Skill Measurement	Clock hours
Module 1: General Introduction to Autonomous Driving	**Description** ● This module introduces students to basic and advanced knowledge about the structure and function of an autonomous driving vehicle and provides students a general description of different configurations of the autonomous driving system architecture and a popular developing tool for the autonomous driving simulation. **Learning Objective** Upon successful completion of this module, students will be able to: ● Understand the structure of the vehicle and the function of each sub-system	6 clock hours in week 1

	● Comprehensively understand the system architecture of the ADAS/AD ● Understand the functional safety of autonomous driving vehicles ● Understand the simulation methodology for autonomous driving via CarSim or CarMaker	
Module 2: Image Processing and Recognition System	**Description** ● This module will teach students the required algorithms and design of the computer vision related to advanced robotics. It will teach students deep learning theory, and CNN for computer vision, as well as related deep learning algorithms such as object detection, and domain adaptation. **Learning objective** Upon successful completion of this module, students will be able to: ● Knowledgeable about image processing techniques ● Knowledgeable about the structure and function of CNN ● Knowledgeable about deep learning theory ● Familiar with the deep learning algorithms	26 clock hours in week 2-4
Module 3: Robotic Operating System of Autonomous Driving	**Description** ● This module will teach students the design and function of the operating system, including the localization, operation, navigation, decision, and safety parts. **Learning Objective** Upon successful completion of this module, students will be able to: ● Understand localization of the system ● Understand operating system ● Understand deep reinforcement learning algorithms and their functions ● Understand the Global Navigation Satellite Systems ● Understand the safety issue involved	26 clock hours in week 4-6
Module 4: Practical Courses of AI Tools for Autonomous Driving	**Description** ● This module will provide students with hands-on experience on how to implement the HD Map, develop visual perception models, and conduct motion planning and statistical analysis about robotic/autonomous systems. **Learning Objective** Upon successful completion of this module, students will be able to: ● Implement HD Map ● Develop deep learning perception models ● Design algorithm for motion planning ● Proficiently use related statistical tools	20 clock hours in week 7-8
Module 5: Introduction to Industrial Design	**Description** ● This module will introduce students to the essential methodology and principles for industrial design and manufacture. To fill the gap between academic knowledge and industrial experience, the students will learn about requirements development, safety analysis, system-level integration and test, product validation and verification.	3 clock hours in week 9

	Learning Objectives Upon successful completion of this module, students will be able to: ● Comprehensively understand system engineering principles ● Comprehensively understand safety engineering principles ● Understand system integration, test, validation, diagnosis, and troubleshooting	
Module 6: Common Skills Training	**Description** ● This module will teach common soft skills to students. The contents will include public speaking, presentation, leadership development, teamwork, communication skills, work effort and schedule estimation, and project management. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Proficient in preparing presentation slides ● Understand leadership development and team building ● Be familiar with communication skills ● Proficient in work effort and schedule estimation ● Be familiar with project management	3 clock hours in week 9
Module 8: Autonomous Driving Capstone Project	**Description** ● This module will provide the opportunity for students to work on the capstone project. The capstone project is designed for students to apply the knowledge learned from the previous modules and further enhance the hands-on skills learned in this program in the real-world autonomous driving industry. Each student is expected to design a sub-system for an autonomous driving car. The student will also realize the sub-system functionality by completing the design documentation based on the learning obtained from this program and other learning resources. ● Students need to complete sub-system design by providing design documentation: o Perform analysis on sub-system features and functionalities and derive use cases o Derive sub-system logical functions and realize functional decomposition per analysis of sub-system features o Perform analysis on logical functions, and develop functional chains to realize logical architecture o Design core system of an autonomous driving vehicle o Modify and test at least one of the following components of the operating system: localization, operation, navigation, and decision ● Students need to validate sub-system functionalities by completing test cases: o Review sub-system requirements and draft test cases o Set up a test bench or lab car, and prepare all needed hardware and tools o Develop core operating system of a car and merge the modified module into the lab car system	12 clock hours in week 8-10

	o Integrate sub-system with harness on a test bench or lab car o Perform test and troubleshooting per test cases **Learning Objectives** Upon successful completion of this module, students will be able to: ● Apply the knowledge from this program for practice and further enhance the hands-on skills in the real-world autonomous driving industry	

Program Name Electric Vehicle

Program Description

This program provides students with the opportunity to understand electric vehicle architecture and domain functionalities. Electric vehicles will be one of the most innovative industrial products in the future. This program will first teach students automotive development history and market trends for automotive standards and design fundamentals. The program will then teach students the systematic design of vehicle domains, including body, battery, chassis, powertrain, thermal, infotainment, telematics, and other relevant focusing areas, at the system, sub-system, and component levels. In addition, this program will teach students about industrial design, including system engineering, safety engineering, quality control, supply chain management, and tools for automotive design, including PREEvision, Vector tools, MATLAB, LabVIEW, ANSYS, and Maxwell 3D.

Objectives

Upon successful completion of this program, the students will be able to:

- Comprehensively understand the key systems of an electric vehicle
- Understand electric vehicle codes and standards
- Fully understand in-vehicle networking fundamentals
- Understand the key aspects for E/E architecture design and development
- Understand the functionalities and functional exchange between systems
- Design and integrate core systems of an electric vehicle
- Apply industrial design knowledge to automotive design
- Apply knowledge learned from hands-on project experience in electric vehicle design

Clock Hours

72 clock hours, 10 weeks

Graduation Requirement

To complete this program a student must complete all prescribed portions of the program and earn a minimum grade of “B” and a grade of “pass” on the Class Participation Rubric and the Project Scoring Rubric.

This educational program is designed to prepare students for employment in the SOC 11-3021 classification. No Externship or Internship is Required. A Final Exam is required.

Sequential Outline of Subject Matter

Name of Module	Description, Learning Objective & Skill Measurement	Hours
Module 1: General Introduction to Electric Vehicle	**Description** ● This module will provide students a general introduction to the history of the automotive industry and the present situation of electric vehicle development. This module also introduces students to the basic knowledge of power electronics and elaborates on related devices and applications in electric vehicle design. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Completely understand the automotive development history ● Completely understand the present situation of the electric vehicle ● Proficient in power electronic theory and power electronic devices	4 clock hours in week 1

	● Design and develop power electronic components for electric vehicle applications	
Module 2: Automotive Fundamentals	**Description** ● This module will introduce students to the fundamental principles and foundational knowledge for automotive design. The contents will include the principles and trends for vehicle E/E architecture design, the hardware and software applications, wiring system design principles, chemicals of the battery cells, the functionalities of the high voltage battery system, in-vehicle network communication protocols, vehicle data transmission and storage, and the computation challenge for the future electric vehicles. In addition, this module introduces students to the internal codes and standards for electric vehicle design and elaborates on Automotive Functional Safety Standard ISO26262 (2018) and Automotive Cybersecurity Standard ISO/SAE 21434 (2021). **Learning Objectives** Upon successful completion of this module, students will be able to: ● Comprehensively understand the principles for E/E architecture design and development ● Understand the battery cell chemicals and the high voltage battery system functionalities ● Completely understand in-vehicle network communication protocols ● Understand vehicle data management and computation ● Understand international codes and standards for electric vehicle design ● Understand ISO 26262 (2018) and ISO/SAE 21434 (2021)	18 clock hours in week 1-3
Module 3: Introduction to Electric Vehicle System Design	**Description** ● This module will provide students with an in-depth explanation of the system architecture and functionalities of each domain of the electric vehicle, including body system, powertrain system, battery system, chassis system, charging system, thermal system, and power distribution system. The students will be required to apply the knowledge gleaned from the previous modules and dive into the subsystem development. The contents will include the mode/state machine, functional exchange, control logic and algorithm, hardware and software architecture, networking and interface, logical and physical schematic, power distribution, conversion, and management, etc. This module will also provide students a brief introduction to the advanced driving assistance systems, autonomous driving systems, infotainment and telematics technology, and over-the-air programming, which will give the students a more complete picture of the electric vehicle. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Comprehensively understand the vehicle mode machine and wake-up strategy ● Understand body system design ● Understand the basics of motor control ● Understand powertrain system design ● Completely understand the algorithms of the battery management system	24 clock hours in week 4-6

	● Understand chassis system design ● Understand charging system design ● Understand thermal system design ● Design and develop HV and LV power distribution systems for electric vehicle ● Understand ADAS and autonomous driving system ● Understand in-vehicle infotainment and telematics technology ● Understand OTA	
Module 4: Introduction to Automotive Tools	**Description** ● This module will introduce students to the basic functions and applications of several industrial design and simulation software tools, which are most widely applied in automotive design and development, including PREEvision for automotive E/E architecture design, CANalyzer and CANoe for system integration and simulation, MATLAB Simulink for the hardware-in-loop test, and LabVIEW for automation test. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Comprehensively understand functions of PREEvision ● Apply CANalyzer and CANoe ● Apply MATLAB Simulink ● Apply LabVIEW	8 clock hours in week 7
Module 5: Introduction to Industrial Design	**Description** ● This module will introduce students to the essential methodology and principles for industrial design and manufacture. To fill the gap between academic knowledge and industrial experience, the students will learn about requirements development, safety analysis, system-level integration and test, product validation and verification. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Comprehensively understand system engineering principles ● Comprehensively understand safety engineering principles ● Understand system integration, test, validation, diagnosis, and troubleshooting	3 clock hours in week 8
Module 6: Common Skills Training	**Description** ● This module will teach common soft skills to students. The contents will include public speaking, presentation, leadership development, teamwork, communication skills, work effort and schedule estimation, and project management. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Proficient in preparing presentation slides ● Understand leadership development and team building ● Be familiar with communication skills ● Proficient in work effort and schedule estimation ● Be familiar with project management	3 clock hours in week 9

Module 7: Electric Vehicle Capstone Project	**Description** ● This module will provide the opportunity for the students to work on the capstone project. The capstone project is designed for the students to apply the knowledge learned from the previous modules for practice and further enhance the hands-on skills in this program in the real-world automotive industry. Each student is expected to design a sub-system for an electric vehicle. The student will also realize the sub-system functionality by completing the design documentation based on the learning obtained from this program and other learning resources. In addition, each student will have the opportunity to work on the real vehicle hardware, including ECU, harnesses, and tools, to perform the sub-system integration, test, troubleshooting, root cause analysis, and validate the sub-system functionalities. ● Students need to complete the sub-system design by providing the design documentation o Derive sub-system logical functions and realize functional decomposition per the analysis of sub-system features o Perform analysis on logical functions, and develop functional chains to realize logical architecture o Draft sub-system requirements, including design requirements, functional requirements, interface requirements, and other necessary requirements o Perform functional allocation to ECUs, and select proper communication protocol and control logic to realize hardware architecture o Perform analysis on functionalities for each ECU, and design software components to realize software architecture o Identify communication messages and signals, layout message frames and signal allocation, and develop DBC files o Design interfaces for each ECU, and identify interface allocation for power, ground, communication, and control o Complete logical schematic, physical schematic, and wiring harness schematic ● Students need to validate the sub-system functionalities by completing the test cases o Review sub-system requirements and draft test cases o Set up a test bench or lab car, and prepare all needed hardware and tools o Integrate sub-system with harness on a test bench or lab car o Perform test and troubleshooting per test cases o Validate sub-system functionalities and develop a root cause report for issues **Learning Objectives** Upon successful completion of this module, students will be able to: ● Apply the knowledge from this program and further enhance the hands-on skills in the real-world automotive industry	12 clock hours in week 8-10

Program Name Machine Learning & Artificial Intelligence

Program Description

This program provides students with the opportunity to obtain a basic understanding of the fundamentals of Artificial Intelligence (AI) both theoretically and practically. This program will first provide students the opportunity to learn the basics related to probability theory and statistics. This program will then present students with topics on basic machine learning and deep learning, with theoretical construction and preliminary training on coding and deep learning frameworks. Finally, this program will direct students to pick one or several specialties to enhance their knowledge in a specific field. The options include natural language processing (NLP), speech recognition, and computer vision.

Objectives

Upon successful completion of this program the student will be able to:

- Comprehensively understand the mathematical foundation of AI.
- Understand the concept of different learning algorithms.
- Proficiently apply AI techniques to real-world problems.
- Earn one specialty and project experience in the AI field.

Clock Hours

88 clock hours, 10 weeks

Graduation Requirement

To complete this program a student must complete all prescribed portions of the program and earn a minimum grade of "B" and a grade of "pass" on the Class Participation Rubric and the Project Scoring Rubric.

This educational program is designed to prepare students for employment in the SOC 11-3021 classification. No Externship or Internship is Required. A Final Exam is required.

Sequential Outline of Subject Matter

Name of Modules	Description, Learning Objective & Skill Measurement	Hours
Module 1: Introduction to Algebra & Statistics	**Description** ● This module introduces students to fundamental concepts of algebra and statistics. Upon successful completion of the linear algebra and probability theory lessons, students will be able to perform matrix operations. Students will also understand the randomness of events and mathematically describe the randomness by an axiomatic system derived from measure theory. Learnings will include probability space and sigma algebra, conditional probability, random variables and vectors, characteristics of random variable, and limit theorems of probability theory will also be discussed which includes the preparation of statistics. Statistics is an application of probability theory, an independent branch of mathematics. ● Statistics focus more on how to collect and analyze data in an inductive manner instead of deductive methods, which most of the time, are used in other math branches. After successful completion of statistics, students will understand how to create statistical models and use statistical inference to optimize the parameters and the confidence level of the inference. Instead of traditional frequentist inference,	18 clock hours in week 1-2

	Bayesian statistics will be discussed. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Understand matrix representation and operation ● Understand random variables and distributions ● Understand total probability and post/prior probability ● Understand samples and the connection to random variables ● Understand statistics of random variables and hypothesis test of a sample ● Understand Bayesian rule ● Understand cutting edge topics on how Bayesian statistics and its application on probabilistic machine learning	
Module 2: Introduction to Data Structure & Algorithm	**Description** ● This module introduces students to the basic usage of the Python programming languages used to solve representative computational problems from various science and engineering disciplines. Software design principles including object-oriented design, decomposition, encapsulation, and modularity are emphasized. Usage of Linux compute resources: login, file system navigation, editing files, compiling, and linking, file transfer, etc. Versioning and revision control, software build utilities, and the LaTeX typesetting software are introduced and used to help complete programming assignments. Finally, students will be familiar with the popular deep learning framework such as TensorFlow and PyTorch. ● The algorithm part of the module will introduce students to the basic approaches and mindsets for analyzing and designing algorithms and data structures. Topics include: ○ Worst and average case analysis ○ Recurrences and asymptotics ○ Efficient algorithms for sorting, searching, and selection ○ Data structures including stack, queue, array, binary search trees, heaps, and hash tables ○ Algorithm design techniques including divide and conquer, dynamic programming, greedy algorithms, amortized analysis, and randomization ○ Algorithms for fundamental graph problems including minimum-cost spanning tree, connected components, topological sort, and shortest paths ○ Possible additional topics including network flow and string searching **Learning Objectives** Upon successful completion of this module, students will be able to: ● Proficiently apply programming knowledge in Python/C++ including basic loop structure and objective-oriented programming ● Proficiently build deep learning models using PyTorch and TensorFlow ● Understand how complicated data structure is constructed over basic	21 clock hours in week 3-5

	ones ● Understand how to deal with space and time complexity when handling large data sets such as sparse matrices	
Module 3: Introduction to Machine Learning	**Description** ● This module provides students with a broad introduction to machine learning and statistical pattern recognition in a fundamental and theoretical style. Topics include: ○ Supervised learning (generative/discriminative learning, parametric/non-parametric learning, neural networks, and support vector machines) ○ Unsupervised learning (clustering, dimensionality reduction, and kernel methods) and learning theory (bias/variance tradeoffs and practical advice) ○ Reinforcement learning and adaptive control ● Beyond the basic construction of models, the course will also discuss recent applications of machine learning, such as robotic control, data mining, autonomous navigation, bioinformatics, speech recognition, and text and web data processing. ● Deep learning is one of the most highly sought-after skills in AI. This module will teach students the foundations of deep learning, including how to build neural networks, and how to lead successful machine learning projects. The module will teach students the architectures including convolutional networks, RNNs, LSTM, Adam, Dropout, BatchNorm, and Xavier/He initialization. Upon successful completion of this course, students will understand how to build a full cycle deep learning model, including the collection of data, and how to design, train and test the model. After this course, students will understand the process and the detailed research that needs to be done with respect to different problems. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Understand different types of un/supervised learning ● Understand optimization with the different loss function ● Understand different architectures of NN step by step and have ideas of gradient vanishing and explosion	18 clock hours in week 5-7
Module 4: Application of AI	**Description** ● Natural language processing (NLP) or computational linguistics is one of the most important technologies of the information age. Applications of NLP are everywhere because people communicate almost everything in language: web search, advertising, emails, customer service, language translation, virtual agents, and medical reports, to name a few. In recent years, deep learning (or neural network) approaches have obtained very high performance across many different NLP tasks, using single end-to-end neural models that do not require traditional and task-specific feature engineering. In this course, students will gain a thorough introduction to cutting-edge research in deep learning for NLP. The detailed topics include word vector embedding, sequence model, and advanced Neural Network	16 clock hours in week 8-9

	architectures such as: o RNN o Transformer et al. with the tutorial on using deep learning frameworks such as PyTorch ● Computer Vision has become ubiquitous in our society, with applications in search, image understanding, apps, mapping, medicine, drones, and self-driving cars. Core to many of these applications is visual recognition tasks such as image classification, localization, and detection. Recent developments in neural network (i.e., deep learning) approaches have greatly advanced the performance of these state-of-the-art visual recognition systems. This course is a deep dive into the details of deep learning architectures with a focus on learning end-to-end models for these tasks, particularly image classification. During the course, students will learn to implement and train their own neural networks and gain a detailed understanding of cutting-edge research in computer vision, such as image classification, object detection, and segmentation. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Understand cutting edge topics in the machine learning area, such as: o Face recognition o Object detection o Segmentation & classification ● Understand text/speech segmentation, sentiment detection, and hot words activation ● Understand corresponding advanced architects, such as Attention and Transformer ● Execute deep learning frameworks, such as TensorFlow, Keras, and PyTorch	
Module 5: Common Skills Training	**Description** ● This module will teach common soft skills to students. The contents will include public speaking, presentation, leadership development, teamwork, communication skills, work effort and schedule estimation, and project management. **Learning Objectives** Upon successful completion of this module, students will be able to: ● Proficient in preparing presentation slides ● Understand leadership development and team building ● Be familiar with communication skills ● Proficient in work effort and schedule estimation ● Be familiar with project management	3 clock hours in week 10
Module 6: AI Capstone Project	**Description** This module will provide students the opportunity to demonstrate their ability to make progress in real-world projects. Students will pick one specialty from theory/mathematics of a machine learning's algorithm or architectures, NLP, or CV. For a theoretical project with emphasis on math/algorithm, a student	12 clock hours in week 8-10

	can choose to prove some interesting/non-trivial properties of a new or existing learning algorithm or propose/modify a new architecture. This can include: o Apply cutting edge dimension reduction concept to improve unsupervised learning/clustering, or o Apply advanced sampling/Bayesian methods to improve the architecture of neural networks Apply the ML/DL techniques to different fields. This is by far the most common: o Pick an application that interests students and explore how best to apply learning algorithms to solve it. One example is to analyze different text/image dataset from different disciplines such as biology, chemistry, clinic, or finance astrophysics o Build a real system to integrate with the real devices, such as medical devices, online platforms, design a user interface to make a demo product **Learning Objective** Upon successful completion of this module, students will be able to: Apply the knowledge from this program to work on an industrial project in their chosen specialty Integrate the deep learning system with the front end for real product development	

REQUIRED DISCLOSURES

The policy of this institution is to update the official school catalog annually, in January of each year.

Annual updates may be made by the use of supplements or inserts accompanying the catalog. If changes in educational programs, educational services, procedures, or policies required to be included in the catalog by statute or regulation are implemented before the issuance of the annually updated catalog, those changes shall be reflected at the time they are made in supplements or inserts accompanying the catalog.

This institution makes its current catalog and current program brochures available to the public at no charge. Individuals who wish to obtain a copy can make arrangements by simply calling the school's office.

This institution is a private institution. The school was granted institutional approval to operate by the Bureau of Private Post Secondary Education (BPPE) and the California Department of Consumer Affairs (DCA). The Bureau's approval means compliance with state standards set forth in CEC and 5, CCR. This approval does not mean that: (1) the institution or its educational programs are endorsed or recommended by the state or by the bureau. Nor that (2) the approval to operate indicates that the institution exceeds minimum state standards as set forth in this chapter.

This institution has not had a pending petition in bankruptcy, is not operating as a debtor in possession and has not filed a bankruptcy petition within the preceding five years nor has had a petition in bankruptcy filed against it within the preceding five years that resulted in reorganization under chapter 11 of the United States Bankruptcy Code.

As a prospective student, you are encouraged to review this catalog prior to signing an enrollment agreement. You are also encouraged to review the School Performance Fact Sheet, which must be provided to you prior to signing an enrollment agreement.

If a student obtains a loan to pay for an educational program, the student will have the responsibility to repay the full amount of the loan plus interest, less the amount of any refund, and that, if the student has received federal student financial aid funds, the student is entitled to a refund of the money not paid from federal student financial aid program funds.

Any questions a student may have regarding this catalog that have not been satisfactorily answered by the institution may be directed to the Bureau for Private Postsecondary Education at 1747 North Market, Suite 225 Sacramento, CA 95834, P.O. Box 980818, West Sacramento, CA 95798, www.bppe.ca.gov, toll free telephone number (888) 370-7589 Fax (916) 263-1897.

A student or any member of the public may file a complaint about this institution with the Bureau for Private Postsecondary Education by calling (888) 370-7589 or by completing a complaint form, which can be obtained on the bureau's Internet Web site www.bppe.ca.gov.

The Office of Student Assistance and Relief is available to support prospective students, current students, or past students of private postsecondary educational institutions in making informed decisions, understanding their rights, and navigating available services and relief options. The office may be reached by calling Toll-free telephone #: (888) 370-7589 or by visiting www.bppe.ca.gov.