

# California South Bay University



## CATALOG 2024

**This catalog covers the time period:  
01/ 01/2024 to 12/ 31/2024**

**577 Salmar Ave, Campbell, CA 95008**  
Tel: (408) 688-5168 Fax: (866) 868-7688  
Website: CASBU.ORG Email: [info@CASBU.ORG](mailto:info@CASBU.ORG)

# 2024 Academic Calendar

## Traditional Semester Scheduling

Traditional Semester Scheduling consists of three 15-week terms scheduled throughout the academic year.

### Spring 2024

(January 6, 2024 – April 18, 2024) January 2 –  
January 3 January 3

#### January 6

January 13  
January 20  
April 1  
April 7  
April 14 – April 18

Registration  
Orientation

#### Classes begin

Last day for Late Registration  
Last day for withdrawing from classes  
Advanced Registration for Summer 2024  
Last day to file for graduation for Spring 2024  
Final week

### Summer 2024

(May 5, 2024 – August 15, 2024) April 28 – May 2  
May 2

#### May 5

May 12  
May 19  
July 21  
July 28  
August 11 – August 15

Registration  
Orientation

#### Classes begin

Last day for Late Registration  
Last day for withdrawing from classes  
Advanced Registration for Fall 2024  
Last day to file for graduation for Summer 2024  
Final week

### Fall 2024

(September 2, 2024 – December 12, 2024)  
August 25 – August 29  
August 29

Registration  
Orientation

#### September 2

September 8  
September 15  
November 17  
November 24  
December 8 – December 12

#### Classes begin

Last day for Late Registration  
Last day for withdrawing from classes  
Advanced Registration for Spring 2015  
Last day to file for graduation for Fall 2024  
Final week

This publication is an announcement of the current programs and course offerings provided by California South Bay University. It is for information only and is subject to change without notice. Courses, faculty assignments, prerequisites, graduation or completion requirements, standards, tuition and fees, and programs may change from time to time. The same courses may not be offered every term.

California South Bay University reserves the rights to change admission requirements, the courses and their contents, the organization of curricula, retention programs, awarding of degrees, and other necessary rules and regulations. Such regulations shall be effective whenever determined by the appropriate faculty and administrative bodies; they may govern both old and new students.

Every effort, however, has been made to assure that all regulations and curricula information contained in this *Catalog* are correct and updated as of January 1, 2024

**The time period covered by this catalog is from 01/01/2024 to 12/31/2024**



# CONTENTS

<b>A MESSAGE FROM THE PRESIDENT</b>	<b>7</b>
<b>INSTITUTIONAL PHILOSOPHY</b>	<b>8</b>
<b>UNIVERSITY LOCATION</b>	<b>10</b>
DIRECTIONS TO CALIFORNIA SOUTH BAY UNIVERSITY	11
<b>ADMISSION POLICIES</b>	<b>13</b>
MASTER DEGREE PROGRAMS & ESL	13
<i>Admissions</i>	13
<i>Applications Requirements</i>	13
<i>Official Transcripts</i>	13
<i>English Proficiency Requirement for International Students</i>	13
<i>English as Second Language (ESL Classes)</i>	14
<i>Experiential Credit</i>	14
<i>Transfer Credit</i>	14
<i>Limits on Transfer Credit</i>	14
<i>Enrollment Agreement</i>	15
<i>Cancellation of Admission and Readmission</i>	15
<i>Entry Status</i>	15
<i>Master's Degree</i>	15
CERTIFICATE PROGRAM	16
<i>Admission Requirement</i>	16
<i>Procedure for Enrollment</i>	16
<b>FINANCIAL INFORMATION</b>	<b>17</b>
FINANCIAL OBLIGATIONS	17
<i>Master Degree &amp; ESL</i>	17
<i>Solar Photovoltaic Certificate Program</i>	18
REFUNDS	18
<i>Refund Policy</i>	18
<i>Full Refund</i>	18
<i>Pro- rated refund</i>	18
<i>Master Degree &amp; ESL</i>	18
<i>Solar Photovoltaic Certificate Program</i>	19
FINANCIAL ASSISTANCE	19
<i>What is financial aid?</i>	19
<i>Federal and State Financial Aid Programs</i>	19
<i>CASBU Scholars Fund</i>	19
STUDENT EMPLOYMENT & ASSISTANTSHIPS	20
STUDENT TUITION RECOVERY FUND	20
<b>ACADEMIC INFORMATION</b>	<b>21</b>
<b>UNIVERSITY REGULATIONS</b>	<b>27</b>
ACADEMIC GRIEVANCE PROCEDURES	27
FORMAL PROCEDURE	27
ACADEMIC INTEGRITY	27
CONFIDENTIALITY OF STUDENT RECORDS	27

NONDISCRIMINATION POLICY	28
SEXUAL HARASSMENT POLICY	28
ENCUMBRANCE OF REGISTRATION AND RECORDS	28
<b>DEGREE PROGRAMS &amp; REQUIREMENTS</b>	<b>29</b>
<b>SCHOOL OF BUSINESS</b>	<b>30</b>
MASTER OF BUSINESS ADMINISTRATION (MBA)	31
<i>Objectives</i>	31
<i>MBA Background Preparation</i>	31
<i>MBA Curriculum</i>	31
<i>Concentration of Study and Career Planning</i>	32
DOCTOR OF BUSINESS ADMINISTRATION (DBA)	33
<i>Objectives</i>	31
<i>MBA Background Preparation</i>	313
<i>MBA Curriculum</i>	313
<i>Electives</i>	314
<i>Doctoral dissertation</i>	314
<i>Changes in Degree Requirements</i>	334
<b>SCHOOL OF ENGINEERING</b>	<b>35</b>
<i>Concentration Area and Career Planning</i>	36
<i>Master's Project / Thesis</i>	36
<i>Advisors</i>	36
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING (MSEE)	37
<i>Background Preparation</i>	37
<i>MSEE Curriculum</i>	37
MASTER OF SCIENCE IN COMPUTER SCIENCE (MSCS)	38
<i>Background Preparation</i>	38
<i>MSCS Curriculum</i>	38
MASTER OF SCIENCE IN DATA SCIENCE (MSDS)	37
<i>Background Preparation</i>	379
<i>MSDS Curriculum</i>	379
<b>SCHOOL OF GREEN TECHNOLOGY</b>	<b>40</b>
MASTER OF SCIENCE IN GREEN TECHNOLOGY (MSGT)	42
<i>Background Preparation</i>	42
<i>MSGT Curriculum</i>	42
SOLAR PHOTOVOLTAIC DESIGN AND INSTALLATION CERTIFICATE PROGRAM	44
<b>SCHOOL OF LIFE SCIENCE</b>	<b>45</b>
MASTER OF SCIENCE IN BIOTECHNOLOGY MANAGEMENT (MSBM)	42
<i>Background Preparation</i>	42
<i>MSBM Curriculum</i>	427
<b>ENGLISH AS SECOND LANGUAGE PROGRAM</b>	<b>45</b>
<i>Levels of Instruction</i>	48
<i>Application Requirements</i>	48
<b>CASBU COURSE DESCRIPTION</b>	<b>49</b>
ACCOUNTING	49
BUSINESS	50
COMPUTER SYSTEM ENGINEERING	51

DATA SCIENCE	51
ELECTRICAL ENGINEERING	56
ENGLISH	63
FINANCE	64
LAW	64
MBA	65
MANAGEMENT	65
MARKETING	68
MSBM	68
GREEN TECHNOLOGY	72
<b>FACILITIES</b>	<b>74</b>
INSTRUCTIONAL FACILITIES	74
TEACHING AND RESEARCH	74
UNIVERSITY LIBRARY RESOURCES	74
COMPUTER LABORATORY	74
ELECTRONICS AND PHYSICS LAB	75
ACCOUNTING AND AUDITING TOOLS	75
AUDIO/VISUAL AIDS FOR AMERICAN LANGUAGE LEARNING	75
COMPUTER NETWORKS	75
<b>STUDENT ACTIVITIES AND SERVICES</b>	<b>76</b>
<b>UNIVERSITY OFFICERS</b>	<b>78</b>
<b>FACULTY</b>	<b>79</b>

## A MESSAGE FROM THE PRESIDENT

By selecting California South Bay University (CASBU), you are choosing an educational institute that will make a positive impact on your life, provide you with opportunities and challenges that will enhance your skills and knowledge, as well as assist you to take greater effort toward your success.

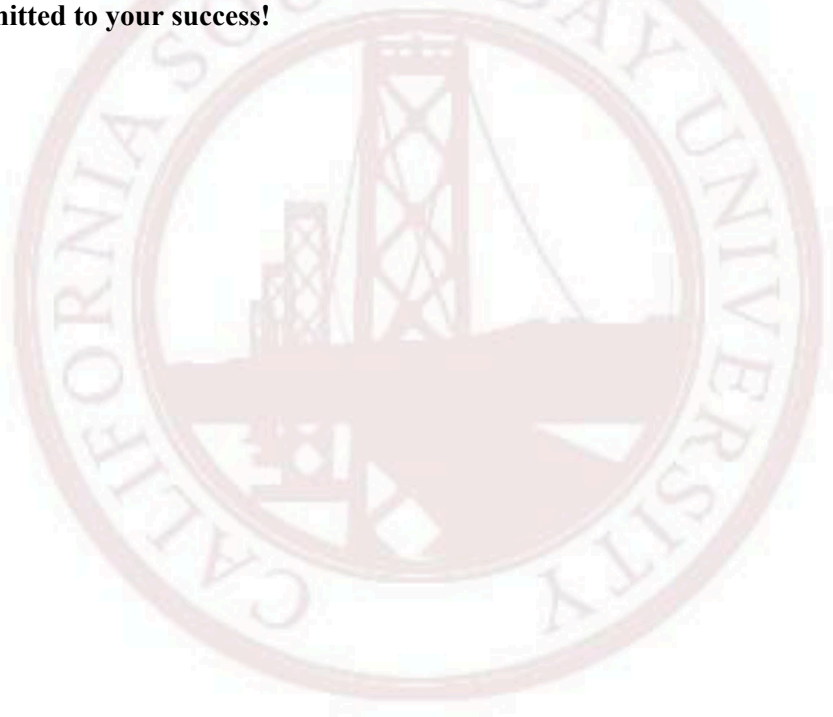
Situated in Campbell, the center of California's world renowned "Silicon Valley", CASBU's educational goal is to capture the dynamics of Silicon Valley's cutting-edge industrial development, so that students are well equipped to meet the needs of the 21<sup>st</sup> century workforce. In addition, state-of-the-art communications infrastructure in the Valley enables CASBU to extend its reach to a wider range of students in far-flung geographic areas.

CASBU utilizes the latest technologies in its efforts to bring the best possible education to students all over the world. We seek to challenge our students by providing the knowledge and foundation necessary to prepare them to become not only highly-skilled professionals, but also committed life-long learners.

I would like to invite you to invest in your academic future and professional success by exploring the opportunities available at CASBU. I am confident that you will have a excellent learning experience upon your joining our diverse community of students, scholars, innovators, skilled practitioners, and entrepreneurs. **Rest assured that each and every one of us, here at CASBU, is committed to your success!**



President



## INSTITUTIONAL PHILOSOPHY

Welcome to California South Bay University! California South Bay University is a pioneer in offering quality academic programs with flexible course schedules designed to meet the needs of working adults. We are committed to providing a challenging and exciting intellectual environment in which adult learners can reach their full potential and achieve their educational goals.

At CASBU, we pride ourselves both on the quality of our education and its relevance to today's professional world; especially in hi-tech and global business management. Each program within the university is designed to ensure that all of the acquired knowledge and skills be valuable to its graduates, offering a practical and solid foundation for the students' future. We make sure that our educational training would help enhance students' basic knowledge, skills, critical thinking, and problem-solving ability in order to bring them closer to accomplishing their professional goals.

In addition to enhancing students' capability of developing their own career, CASBU embraces the notion of innovation. It is dedicated to fostering a culture of innovation by nurturing the spirit of collaboration, critical thinking, and entrepreneurship within its student community. Students are encouraged to be creative in acquiring advanced knowledge and to embrace a creative spirit into their lives. We believe once students internalize the spirit of innovation through participating in our learning community, it will become their life-long asset.

With our passion to provide excellent education to people who love to learn, we sincerely invite you to join us in our many professional programs in the fields of computer science, business management, electronic engineering, health care, and green energy. A wise decision today, translates to a bright future tomorrow.

### Statement of Mission, Purpose and Objectives

California South Bay University is a learning community that seeks to serve society by educating the leaders of tomorrow and extending the frontiers of knowledge.

The mission of California South Bay University is to provide a synthesis of innovative and traditional education leading to outstanding professional opportunities for adult learners. California South Bay University aims to bring qualified faculty, who have had active careers in high-tech industries and businesses, to interact with highly motivated students in a stimulating learning environment. California South Bay University adapts its curricula to meet the needs of fast changing global business climate that is coupled to an even faster changing technological landscape. Presently, California South Bay University focuses on graduate degree programs at the master level in Computer Science (MSCS), Business Administration (MBA), Electronic Engineering (MSEE), Green Energy (MSGÉ) and on the program of English as Second Language (ESL).

Our educational goal is to give students a solid background in general studies as well as specialized knowledge in their chosen field. Although we realize the necessity of building a solid academic foundation grounded in courses that provide a great deal of basic information, we believe that our primary task is to teach students not only concepts, but the process of discovery, analysis, and application of these concepts.

At California South Bay University, education encompasses continuous striving for excellence with the contexts to learning so that knowledge is gained not only for its own sake, but for the sake of modern society which the people for California South Bay University are a part of.

Programs and courses at CASBU are designed to support both full-time and part-time students.

Courses are created and updated continuously so as to include the latest technological innovations and advances in the Silicon Valley.

Courses are designed to be competency-based, and are taught using innovative instructional methods.



Proficiency in public speaking and technical writing is an integral part of degree requirements.

The curricula emphasize technologies and studies pertaining to environmental protection and sustainability.

A strong practical application component is integrated into the curriculum and often into each class.

Special attention is given to practical engineering research/development problems.

MBA curriculum includes a strong component of business ethics and social responsibilities.

An Advisory Board consisting of leaders in industry from Silicon Valley. They are closely involved in shaping the nature and content of the programs offered by CASBU.

### **The Objective of CASBU**

California South Bay University provides a unique educational culture and learning environment for students because California South Bay University has recruited a strong pool of talented individuals from Silicon Valley to teach courses, mentor students, conduct research, and provide students services.



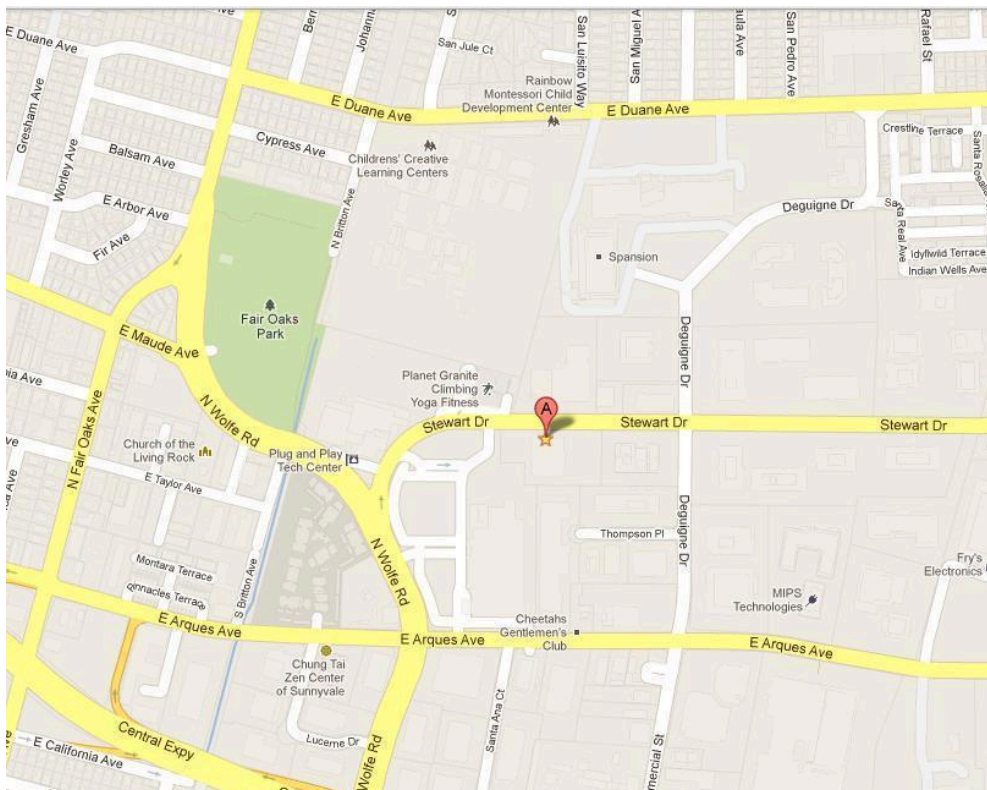


## UNIVERSITY LOCATION

California South Bay University is located just 40 miles south of San Francisco and is in the center of the world's greatest concentration of hi-tech, professional and scientific activity: Silicon Valley. There are many world-renowned firms within a five mile radius of CASBU such as HP, Intel, Microsoft, AMD, ATMEL, Sun Microsystems, NASA and IBM; each one a global leader in science and/or technology. San Francisco, San Jose, Marin County, Berkeley, Oakland, and California's famous pacific beaches are all within one-hour's travel by bus, train, or car. The Monterey Peninsula, Carmel and the famous Napa Valley wine country are all less than two hours away. San Jose International Airport is about nine miles from the campus.

University Address:

California South Bay University  
577 Salmar Ave.  
Sunnyvale, CA 95008  
Tel: (408) 688-5168  
Fax: (866) 868-7688



## **DIRECTIONS TO CALIFORNIA SOUTH BAY UNIVERSITY**

### **Coming from San Francisco (approximately 40 minutes):**

#### **By Car:**

Take US-101 South towards I-80 E/Oakland/San Jose

Slight right to merge onto US-101 S toward I-80 E/Oakland/San Jose

Take exit 395B for Fair Oaks Ave S

Merge onto N Fair Oaks Ave

Continue onto N Wolfe Rd

Turn left onto Stewart Dr

Arrive at 577 Salmar Ave,Campbell, CA on the right

#### **By Public Transportation:**

Take Caltrain (direction: San Francisco to San Jose), exit atCampbell Caltrain Station

Walk to Frances & Olson (Svle Transit Ctr)

- Take Bus - 304 - S. San Jose atCampbell Trans Ctr towards 304 SB Limited South San Jose

Walk to 577 Salmar Ave,Campbell, CA 95008

### **Coming from San Jose (approximately 15 minutes):**

#### **By Car:**

Take CA-87 N and take exit onto US-101 N towards San Francisco

Take the Lawrence Expwy exit

Turn left onto Lawrence Expwy

Turn right onto E Duane Ave

Turn left onto Stewart Dr

Visit us at 577 Salmar Ave,Campbell, CA on the left

#### **By Public Transportation:**

- Take Bus - 22 - Palo Alto - Eastridge towards 22 WB Palo Alto Transit Center
- Walk to Santa Clara Caltrain Station
- Take Train - Limited towards San Francisco (Train 257)
- Walk to Frances & Olson (Svle Transit Ctr) Option B
- Take Bus - 55 - De Anza College - Great America towards 55 NB Great America

Walk to 577 Salmar Ave,Campbell, CA 95008

**Coming from Hayward (approximately 30 minutes):**

By Car:

Take I-880 S exit towards San Jose

Take the California 237 W exit toward Mtn View

Merge onto CA-237 W

Take the Lawrence Expwy/Caribbean Drive exit

Keep left at the fork, follow signs for Lawrence Expy

Keep right at the fork and merge onto Lawrence Expy

Turn right onto E Duane Ave

Turn left onto Stewart Dr

Arrive at 577 Salmar Ave, Campbell, CA on the left

By Public Transportation:

- Take Metro rail from Hayward station (direction: Fremont) exit at Fremont station.
- Walk to Fremont Bart Station
- Take Bus 181 - San Jose Diridon - Fremont Bart towards 181 SB Express San Jose
- Walk to San Jose Caltrain Station
- Take Train - Limited towards San Francisco (Train 261)
- Walk to Frances & Olson (Svle Transit Ctr)
- Take Bus 304 - S. San Jose -Campbell Trans Ctr towards 304 SB Limited South San Jose
- Walk to 577 Salmar Ave, Campbell, CA 95008





## **ADMISSION POLICIES**

**CASBU admits all qualified individuals into the University without regard to race, religion, gender, ethnic origin, or physical handicap.**

**CASBU makes education available to all individuals who meet the qualifications for entrance the University.**

### **MASTER DEGREE PROGRAMS & ESL**

#### **Admissions**

For Master Degree and ESL program, the academic year is divided into three semester terms each year, starting in: January, May, and September respectively. An applicant may apply for admission into any of the three Semester Terms. Applications are accepted throughout the year.

The CASBU Admissions Committee provides individualized admission evaluation service and follows the approved credit transfer policy to transfer credit for each application.

#### **Applications Requirements**

All CASBU Applications must include:

Completed CASBU Application Form

Non-refundable University Admission Application Fee

Copy of valid photo ID

Official College Transcripts are required. For international students official transcripts from all previous colleges attended with certified English translation if transcripts are from non-English speaking countries.

Diploma copy of any earned degree programs

TOEFL score report, to verify your English Proficiency if English is not your first language.  
(IELTS might be acceptable upon evaluation)

- Letter of Recommendation (optional)

#### **Official Transcripts**

All official transcripts must be received prior to final admissions approval. Late submissions are permitted only with the approval of the Admissions Committee. Student enrolled in courses at another institution at the time of application will have 60 days after the completion of the course to provide CASBU the updated transcript. Failure to submit official transcript on time may result in placement of the applicant into temporary a non-degree status.

#### **English Proficiency Requirement for International Students**

Classes will be taught in the English language. Applicants who have completed high school education or an undergraduate degree program in an English speaking country or school are considered meeting the entrance English requirement.

Applicants whose preparatory education was principally in a language other than English must prove sufficient skills in English to be considered for admission. English proficiencies can be assessed by a standardized test, such as TOEFL or IELTS. Students who fail to provide proof of English proficiency must register to take ESL class on-campus. The exam results will indicate the student's English proficiency level in listening, grammar, reading, conversation and writing.





Applicants must receive a minimum score of 550 on the paper-based Test of English as a Foreign Language (TOEFL PBT), or 79 on the Internet Based Test (iBT), or a 6.0 on the International English Language Test (IELTS). TOEFL Institution Code for CASBU is 6691.

### **English as Second Language (ESL Classes)**

The ESL curriculum at CASBU is designed to serve student whose English assessment results are either unavailable or low enough to require them to take the classes to improve their English proficiencies before starting their graduate level courses. At CASBU, ESL classes are offered at 4 different levels. Students will be placed into an appropriate class based on their placement examination results.

The ESL classes are offered with the same semester schedule as the degree courses. The subjects cover listening comprehension, grammar, pronunciation and accent reduction, vocabulary development, reading, conversation, writing and presentation skills. Students placed in the highest levels of ESL classes may be allowed to concurrently take a limited number of degree classes at CASBU with the approval of education committee, provided that this optimizes their learning objectives.

### **Experiential Credit**

CASBU does not recognize or award credit for prior experiential learning.

### **Admission Procedures**

The applicants are encouraged to consult our admission counselors before submitting their application.

The applicants must complete the Admission Application package and submit the application package to CASBU admissions office.

All applicants must successfully complete a placement test.

The applicants must provide official academic transcripts and diplomas from all academic institutions they have attended including high school. The transcripts and diplomas are subject to evaluation by our Academic Office.

The applicants will be informed via email, followed by a letter, once a decision is reached on their application.

An advisor will be assigned to the admitted applicants to complete the enrollment process before the class starts. The applicants need to:

- a. Sign the Enrollment Agreement
- b. Be notified of the Notice of Student's Rights
- c. Read Student Handbook and agree to CASBU's policies and procedures

### **Transfer Credit**

Credit units earned at other universities, colleges and educational institutions may be transferred into CASBU as evaluated by the Admissions Committee.

CASBU has not entered into any formal transfer credit agreements with other degree granting institutions at this time.

CASBU does not charge processing fees for credit transfer.

### **Limits on Transfer Credit**

The specific number of credit hours accepted for transfer is determined on an individual basis and is not automatic. For graduate degrees, no more than 20 percent of the credit hours can be transferred. In all cases students must complete a minimum of 80% of the academic work at CASBU to earn a graduate degree. Transfer units for individual courses are accepted only when the student has received a grade of C or above. Only courses taken within the past 5 years shall be considered for credit transfer. CASBU does not award credit for prior experiential learning.



## **Enrollment Agreement**

Upon acceptance the student is presented with an Enrollment Agreement form which indicates the student's program, length of study, estimated costs, refund policy, and other pertinent information. The student should read the information provided on the form. Both the student and the admissions staff must sign the enrollment form.

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.

## **Cancellation of Admission and Readmission**

If an applicant is accepted into a degree program for a given semester and does not begin classes in that semester, admission will be cancelled automatically. The prospective student's application package is kept on file for a period of 5 years. If the applicant then wishes to be considered for readmission in a later semester, he/she will be required to resubmit 1) an application form, and 2) pay a readmission fee. A re-evaluation of admission will be made for the applicant.

## **Entry Status**

Unless otherwise determined by the Admissions Committee, all newly admitted students are to have "Entry Status" at CASBU. After the successful completion of two terms, or 18 credit units, students will automatically become "Full Status" students.

## **Master's Degree**

- Students seeking admission in our Master's Degree Program must possess a 4-year bachelor's degree or equivalent.

The Graduate Record Examination (GRE) for MS applicants or GMAT for MBA applicants is preferred, but not required.

The minimum requirement of a Full Time master's enrollment is as follows:

Enrolling in 9 credit units in each of the two out of the three semester terms throughout one year of study (12 month period), starting from the student's first day of class attendance.

## **CERTIFICATE PROGRAM**

### **Admission Requirement**

The courses offered by the institute are open to individuals who possess a high school diploma or equivalent. The prospective students must be 18 years or older of age. Prospective students are invited to visit the institute and discuss their needs, goals, and objectives with faculty and staff members. Each applicant will be required to show a high school diploma or equivalence before being accepted to the program. Student can also be admitted by passing the school's administered entrance exam. The minimum score for passing the entrance exam is 18 points; excluding some programs students will be otherwise notified prior to taking the exam. The final explanation right is reserved by the California South Bay University.

Foreign students unable to obtain documentation of their education must also meet the above requirements and also have satisfactory English comprehension. Potential students will contact California South Bay University to make an appointment with an admission's representative to get information on our courses and tour the facility.

### **Procedure for Enrollment**

An applicant makes an appointment for an interview with the admissions staff. The applicant will complete an application covering his/her personal, education, and employment history, and area of occupational interest. The applicant will then be taken to a tour of the facilities. This tour includes an explanation of what goes on in each classroom and a review of course equipment and materials. Following the tour, based on the courses applied for, a computer aptitude test is administered. The test is evaluated and graded; and results are then discussed in detail with the applicant. A document certifying prior education is requested, or a request for transcript form is completed and signed for each secondary and post- secondary institute he/she has attended. If no high school education document or its equivalent is presented, a school entrance test is scheduled.

## FINANCIAL INFORMATION

### Financial Obligations

#### Master Degree & ESL

##### **Tuition and Fees per Semester:**

Application fee (One-time fee, nonrefundable, sent with each application form)	\$ 100.00
Tuition for graduates (per credit unit for all courses & thesis)	\$320.00
Tuition for ESL program (per credit unit)	\$140.00
Registration fee	\$ 50.00
Late registration fee <sup>1</sup> (Semester Scheduling only)	\$100.00
Student association membership (per semester)	\$ 10.00
Late payment fee	\$ 50.00
Class Drop Fee	\$ 20.00
Class Add Fee	\$ 20.00
Fee for filing petition for incomplete grade	\$ 50.00
Fee for course examination under <i>Challenge Test Option</i>	\$ 100.00
Graduation fee (when file in for graduation request)	\$ 280.00
Cooperative education fee (per graduate credit unit)	\$ 320.00
Academic transcript fee (per copy)	\$ 10.00
Returned check fee	\$ 20.00
Student ID Fee	\$ 10.00

<sup>1</sup>*Nonrefundable, regardless of the number of credit hours registered*

#### **Estimated Program Charges**

The student is responsible for the following fees and charges: (Based on current year's tuition/fee schedule. Future years cost will be published in future catalog.)

Graduate Program Tuition:	\$ 11,520.00
Registration Fee (Non-refundable)	\$ 200.00
Student Association Fee (Non-Refundable)	\$ 40.00
Textbooks (estimates only, based on 12 textbooks)	\$ 600.00
Graduation Petition Fee	\$ 280.00
Tuition Recover Fund Fee (Non-Refundable)	\$ 28.80
<b>Total Program Cost</b>	<b>\$ 12,388.80</b>

Total charges for the current period of attendance (first semester)	\$ 4,289.60
Estimated total charges for the entire academic program	\$ 12,388.80
Total charges due upon enrollment	\$ 1,000.00

## Solar Photovoltaic Certificate Program

### Tuition & Cost

Certificate program Registration fee (nonrefundable)	\$ 50.00
Cost of Program	\$3,000.00

### Estimated Program Charges

Estimated total charges for the entire program	\$ 3,050.00
Total charges due upon enrollment	\$3,050.00

## Refunds

### Refund Policy

The refund shall be the amount the student paid for instruction multiplied by a fraction, the numerator of which is the number of hours of instruction which the student has not received but for which the student has paid, and the denominator of which is the total number of hours of instruction for which the student had paid.

All amounts that the student has paid, however denominated, shall be deemed to have been paid for instruction, unless the student has paid a specific charge for equipment as set forth in the agreement for the course of instruction. The last date of the student's attendance is used for all refund calculations.

### Full Refund

A student who cancels his/her enrollment agreement after the attendance of the first class session or the seventh day after enrollment, whichever is later, shall be entitled to receive a full refund. Cancellation shall occur when the student gives a written notice to the Director of Admission. If sent by mail, the written notice of cancellation is effective when postmarked, and properly addressed with postage paid.

### Pro- rated refund

A student may withdraw from a course of instruction at any time. If the student withdraws from a course once the course is started, the student is entitled to receive a pro- rated refund, based on the last day of attendance, for the unused portion of the tuition, in accordance with the following pro- rated refund policy.

The pro-rated refund shall be the total amount paid for the course multiplied by the number of hours remaining in the course, divided by the total number of course hours. There will not a refund of the registration fee or applicable STRF fee.

## Master Degree & ESL

Students have the right to cancel the enrollment agreement and obtain a refund of charges paid through attendance at the first class, or the 7<sup>th</sup> day after the enrollment agreement, whichever is later. Students may formally withdraw from a class by handing in a completed *Course Drop Form* obtained from the Academic Office. If a student withdraws from a course, he/she may be eligible to receive a refund, the amount of which will be in accordance with the following chart. The student must return all the checked out items such as library books and equipment prior to refund. The detailed refund schedule for a typical 3 credit unit class is as follows:

Date of withdrawal is before the end of:	% of Tuition Refunded
--	-----------------------

After the first day of the class or the seventh day after enrollment (whichever comes later)	100%
2 <sup>nd</sup> week	90%
3 <sup>rd</sup> & 4 <sup>th</sup> week	80%
5 <sup>th</sup> week	70%
6 <sup>th</sup> & 7 <sup>th</sup> week	60%
8 <sup>th</sup> week	50%
9 <sup>th</sup> & 10 <sup>th</sup> week	40%
11 <sup>th</sup> week	30%
12 <sup>th</sup> to 16 <sup>th</sup> week	0%

## Solar Photovoltaic Certificate Program

If CASBU does not accept your application for admission or cancels your enrollment agreement prior to the first class session, all funds paid, including the registration fee, will be fully refunded. The student has a 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 comes later. You may cancel this enrollment agreement and receive a refund by providing a written notice to Office of Admissions, CASBU, 577 Salmar Ave., Suite 118, Campbell, CA 95008. CASBU must receive a written cancellation notice with your signature on it. Do not telephone a cancellation.

## Financial Assistance

### What is financial aid?

At CASBU, state, institutional, and private fund(s) are used to assist eligible students in funding their education. Financial aid can be a combination of scholarships, grants, waivers, and student employment. Scholarships, grants and waivers are considered “free money” and the student is not required to repay; however, loans must be repaid in accordance with the terms and conditions of the particular loan. CASBU is associated with a number of private loan companies, such as the Beneke Financial Group and US Bank, and will help students in connecting with these networks. Student employment includes both work-study positions and part-time employment positions, either on- or off- campus. CASBU Career Services may assist students in obtaining such employment.

We encourage all students to discuss the most suitable financing option for their particular needs with one of our Financial Specialists.

California South Bay University (CASBU) offers many options to help you finance your education. In this section you will find relevant information about these options, applying for financial assistance, costs, types of aid/scholarships, and more.

### Federal and State Financial Aid Programs

At this time CASBU does **not** participate in state and/or federal student financial aid programs.

### CASBU Scholars Fund

All CASBU students are eligible to apply for the CASBU Scholarships, which offers a limited number of tuition waivers paid internships and graduate assistantships each year. Need-based installment payment plans are also available. Please check with one of our Financial Specialists and you will be assisted cordially.



## **Student Employment & Assistantships**

Graduate Assistantships are granted either for a semester or for an academic year consisting of two or three semesters as specified by the individual appointment. It could be either a Teaching Assistantship or a Research Assistantship depending upon the needs of the Dept. Chair and/or Professor conducting the research. In addition, there might be other options available, such as tutoring program, administrative assistant training program, etc., that might help the student earn extra cash. Recipients of Graduate Assistantships are expected to commit up to 20 hours per week of services for a part-time appointment. For a part-time administrative assistantship, the stipend is monetary compensation or a full/partial tuition fee waiver. Awards are made based on a combination of an individual applicant's potential to succeed, proven track record and/or financial need as evaluated by the School.

## **Student Tuition Recovery Fund**

The State of California created the Student Tuition Recovery Fund (STRF) to relieve or mitigate economic losses suffered by students in educational programs who are California residents, or are enrolled in a residency programs attending certain schools regulated by the Bureau for Private Postsecondary and Vocational Education.

You must pay the state-imposed assessment for the Student tuition Recovery Fund (STRF) if all of the following applies to you:

1. 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 either by cash, guaranteed student loans, or personal loans, and
2. Your total charges are not paid by any third-party payer such as an employer, government program or other payer unless you have a separate agreement to repay the third party.

You are not eligible for protection from the STRF and you are not required to pay the STRF assessment, if either of the following applies:

1. You are not a California resident, or are not enrolled in a residency program, or
2. Your total charges are paid by a third party, such as an employer, government program or other payer, and you have no separate agreement to repay the third party."

Students may be eligible for STRF if you are a California resident or are enrolled in a residency program, prepaid tuition, paid the STRF assessment, and suffered an economic loss as a result of any of the following:

1. The school closed before the course of instruction was completed.
2. The school's failure to pay refunds or charges on behalf of a student to a third party for license fees or any other purpose, or to provide equipment or materials for which a charge was collected within 180 days before the closure of the school.

# ACADEMIC INFORMATION

## Study Plan

Upon admission to a degree program, the new student receives a copy of his/her admission evaluation form, which also includes the graduation requirements.

## Academic Advising & Counseling

Each student will be assigned an Academic Advisor in the program in which the students seek a degree. The Academic Advisor will assist in planning a program of study that both fits the needs of the student and satisfies the program requirements. *Advisor approval is required for registration.*

## Adding and Dropping Courses

Unless otherwise determined by the Academic Committee, students are not allowed to add any courses after the 10% of the instruction point. Students must also obtain permission from the Professor teaching the class/section they intend to add.

Students who wish to drop a course must do so before the 10% of the instruction point is reached to not have it affect their grades. These students will have the designator WN (Withdrawal - No attempt) appears on their transcripts. Students who drop a course after the 10% point and up to the 59% point in the term will have the designator WA (Withdrawal – Attempted) on their transcripts. Students dropping a course after the 59% point in the term will have the designator WP or WF on their transcripts, depending on whether the student was passing or failing the course at the time of filing the request to drop. Refund of tuition will be issued for a dropped course as stated in the Financial Obligations and Refunds section.

Holders of fellowships, assistantships, tuition and fee waivers, and student visas must maintain the required number of credit hours or risk losing their tuition and fee waiver for the term. Students who lose their waivers must pay the full cost of tuition.

## Withdrawal from CASBU

A student is considered “withdrawing” from CASBU when either of the following occurs:

- Student submits a “Request for withdrawal from CASBU”

- Student drops/withdraws from all courses enrolled when the student is required to remain enrolled to maintain academic status.

- Student is dismissed from the University due to disciplinary issue, unsatisfactory academic performance or violation of regulations required for international students.

## Continuation and Probation Rules

Students are considered to be in good standing if they:

- Have achieved Full Status

- Are not on probation

- Are making satisfactory progress towards degree requirements, including a project or thesis if required.

## Course Load

Graduate students who enroll for at least 9 credit hours in one term will be considered to be full time students.



## Evaluation Points in the Academic Program

CASBU Academic Committee will assess the academic progress of all its students at the end of each term. The Academic Committee may be formed by one or more academic counselors.

## Academic Probation

The following students are placed on academic probation:

If after attempting at least 18 credit hours, the student's GPA is less than 2.0 or the student has earned less than 9 credit hours.

If after attempting at least 27 credit hours, the student's GPA is less than 2.0 or the student has earned less than 18 credit hours.

Students on academic probation who change programs or seek additional degrees will remain on academic probation and their previous CASBU academic record will be used to determine the satisfactoriness of their academic progress.

## Dismissal

Students who reestablish satisfactory progress will be removed from academic probation. Students who fail to clear their academic probation status within five academic terms will be dismissed.

To address special circumstances, students may appeal by filing petitions to the school's Academic Committee.

## Classes – Scheduling Hours

Classes at CASBU are conducted between 8 a.m. and 10.30 p.m. weekdays, or on the weekends between 9 a.m. and 3 p.m. For more details, please contact the Administrative Office.

## Credit Hours for Courses

Academic units are measured in terms of credit hours. One credit hour is equivalent to one semester term hour, where one semester term hour is equivalent to 15 classroom hours of lecture. For courses that involve laboratory work and/or practicum, one credit hour equals 30 laboratory hours and 45 practicum hours respectively.

## Grading System

The following grades are used:

Grade		Grade Point
A	Excellent/Distinction	4.00
A-	Intermediate grade	3.67
B+	Intermediate grade	3.33
B	Above Average	3.00
B-	Intermediate grade	2.67
C+	Intermediate grade	2.33
C	Average	2.00
C-	Intermediate grade	1.67
D+	Intermediate grade	1.33
D	Minimal Pass /Below Average	1.00
D-	Intermediate grade	0.67
F	Failure	0.00
WN	Withdrawal - No Attempt	
WA	Withdrawal - Attempted	

WP	Withdrawal - Passing	
WF	Withdrawal - Failing	
S	Satisfactory (pass-fail option)	
U	Unsatisfactory (pass-fail option)	
NCR	No Credit	
ED	Deferred Grade	
RD	Deferred Grade-Project/Thesis	
TR		Transfer credit
CR		Credit by passing challenge examination (Grade must equal C or better)
IP		In process
AU		Audit
I		Incomplete

GPA calculation: All GPA's are calculated by the following formula: grade points times' course credit=course grade points; total course grade points for the term divided by total calculable units for the term=grade points average for the term. The term GPA is based on all courses with calculable grades in a term; the cumulative GPA is based on all courses with calculable grades. Students may retake any course at any grade level below an "A". All grades will be recorded, but only the first retake grade recorded will be computed on the final graduation record. Retakes are noted by "R".

A grade of at least C or P is required for master's degree programs. However, all registered credit hours are counted as attempted credit hours and all grades except I, P, NP, WA, WN, WP, WF, AUD and NR are used in computing the GPA. A graduate student must earn a cumulative 2.0 or above GPA to be eligible for the master's degree.

All courses require letter grades except those specifically designated. For deficiency courses, a letter grade shall be given although not counted in the student's overall GPA. A grade of C- or better constitutes a passing grade for a deficiency course. Deficiency courses may be completed at CASBU or any other accredited institutions.

If a student takes the failed course more than once, the higher grade will be used in calculating the cumulative GPA (CGPA). However, all credit hours, whether the subject is original or the repeated course, are included as units attempted on the transcripts.

## **Transfer Out**

### **NOTICE CONCERNING TRANSFERABILITY OF CREDITS EARNED AND CREDENTIALS EARNED AT OUR INSTITUTION**

The transferability of credits you earn at California South Bay University (CASBU) is at the complete discretion of an institution to which you may seek to transfer. Acceptance of the degree you earn in the Master's degree program is also at the complete discretion of the institution to which you may seek to transfer.

If the credits or degree that you earn at this institution are not accepted at the institution to which you seek to transfer, you may be required to repeat some or all of your course work at the institution. For this reason you should make certain that your attendance at this institution will meet your goals. This may include contacting an institution to which you may seek transfer after attending CASBU to determine if your credits or degree will transfer.

## **Examination**

### **Course Examination**

All courses at CASBU have at least one examination a semester: Final Exam. This examination may consist of information found in the textbook, outside reading(s) and in the lectures. The structure of examination can be any combination of essay(s), multiple-choice answers, short answer, and quantitative calculations.

### **Examination for Challenging a Course**

CASBU acknowledges that an exceptional graduate student, by reason of independent studies, overlapping course work or work experience, may have achieved the learning objectives of a course. In this case, student can request to receive credit for the course by completing a "Challenge Examination." Students must earn a grade of C or better to successfully complete a "Challenge Examination".

## **Registration**

Registration procedures and course offerings can be found in the Class Schedule or on the school website each term. Students are responsible for the complete and accurate processing of their registration according to the guidelines.

New students may register during the designated period at the beginning of their first term or during the late registration period. Currently enrolled students should register during the pre-registration period in the previous term or the registration period of the current term. Continuing students who register during the late registration period will be assessed a late registration fee.

## **Repetition of Courses**

Students may repeat a course for credit if:

- The course is designated with the phrase "May be repeated for credit."

- The course is the one in which a grade of I, D, F, U, WA, WN, WF or WP was received. In such cases, the course can be repeated and counted only once toward the degree requirements if the student passes the class.

- Or with the permission of the Academic Committee on a case-by-case basis.

- They have earned a grade of D+ or less for a course which is a pre-requisite to another course.

## **Auditing Courses**

Students wishing to audit a class must provide a form bearing the approval of the instructor and the Administration Office and file it with the Office of Admissions and Records.



## **Policy for Incomplete Grade**

In order to receive a grade of "I", the student must file a petition with the Registrar prior to the final examination week after obtaining written approval from the instructor of the course he/she wishes to receive a grade of "I" in. The grade "I" is used only for circumstances or situations beyond the student's control. Furthermore, CASBU's policy prohibits granting an "I" to a student who is failing the course at the time the request is made. An "I" that is not removed by the deadline (one academic semester) is converted to an "F".

## **Placement Test Option**

CASBU recognizes that exceptional students, for various reasons may have already achieved the learning objective of a course, so a *Placement Test Option* is provided. At the discretion of the instructor and the Academic Committee, CASBU offers a *Placement Test Option* for students to see if they have the proper background and prerequisites for the advanced courses. If a student fails this test, he/she cannot retake the test for this course again and must enroll and pass the corresponding course. The grade earned on the Challenge Test will be recorded on the transcript.

## **Attendance Policies**

**Absence** --- Absence will be considered excused under the following circumstances: illness, death, or birth in the immediate family, and other valid reasons substantiated in writing and granted at the discretion of the Dept. Head of the student's major program of studies. All other absences will be considered unexcused. Students who have three or more unexcused absences will be automatically dropped from the class and receive an "F" on their transcripts. Students are not allowed to miss more than 20% of the class hours under any circumstances and those failing to meet this requirement will be dropped from the course and an "F" will be recorded on their transcripts.

**Tardiness** --- Tardiness is a disruption of a good learning environment and is to be discouraged. Tardiness without legitimate reason on three occasions in one class will be considered as one unexcused absence.

**Cutting Classes** --- Cutting of classes (leaving early before the end of the class) will be considered as unexcused absences

**Make-Up Work** --- Make-up work may be required for any absence. However, hours of make-up work cannot be accepted as hours of class attendance.

**Leave of Absence** --- Written requests for leaves of absence will be considered and such leaves may be granted to students at the discretion of the University. Students seeking a leave of absence must petition the Vice President of Academic Affairs in writing. The written request must be signed and dated and include an explanation of the extenuating circumstances that have necessitated the request and the student's plan to return to the normal studies. The request must also include any necessary and appropriate documentation to establish the necessity of the absence from regular studies. Acceptable reasons include medical/familial emergencies, military/governmental obligations or other circumstances beyond the student's control. Only one leave of absence shall be granted in one calendar year period unless extra-ordinary and well-documented reasons merit the approval of an additional leave. Leaves of absence shall not exceed a cumulative total of 180 days in one calendar year period. Leaves of absence may not be granted to students on probation.

## **Education Records**

Education records are all files, records, or documents maintained by the school, which contain information directly related to the student's academic pursuits at the University. These include student education files, placement files, and financial aid files. It is the University's policy to monitor educational records to ensure that they do not contain information that is inaccurate, misleading or inappropriate. The student records must be kept for five years onsite. However, student transcripts are maintained permanently.



## **Graduation**

As a student approaches the end of his/her studies, the student must initiate the review process at the Registrar's Office to verify his/her eligibility for graduation. To do this student needs to fill out the Application for Graduation and submit the requisite fee. Subsequently the Registrar's Office shall conduct a review and notify the student in writing as to his/her eligibility to graduate and the graduation date.



# **UNIVERSITY REGULATIONS**

## **Academic Grievance Procedures**

In general, an academic grievance procedure refers to an administrative process through which students may seek resolution of complaints or grievances arising from a decision made about them.

General student complaints should be addressed to the Chair of the Department at which the complaint is directed. For complaints regarding other students, see Student Code of Conduct in the Student Handbook. For complaints pertaining to discrimination and/or sexual harassment, see the grievance procedure outlined in the Student Handbook. Complaints regarding academic issues should first be addressed to the faculty teaching the particular course. The University strongly encourages the resolution of all academic issues mutually and informally between the faculty and the student. Academic problems remaining unresolved should then be addressed to the Chair of the Department.

## **Formal Procedure**

If the situation could not be resolved through any reasonable informal method, up to and including mediation by the Chair of the concerned Department, the student may escalate it to a formal grievance complaint. To initiate a formal grievance complaint the student must fill in and submit the grievance form to the Office of the Vice President of Academic Affairs. The VP or his/her designee will conduct an investigation of the grievance and may interview the student and other people related with the grievance for further clarification. After the investigation, the University will either grant or deny the student's petition or provide other means of resolution. The complainant shall be notified of the decision, in writing, no later than 14 calendar days following receipt of the written grievance. If this process does not resolve the situation in a way that is satisfactory to the student, the student has 14 days to appeal the decision to the Office of the President of the University in writing. The president then has 14 days to notify the student of his/her decision; either grant or deny the redress sought or provide other resolutions. The President's decision is final. The student will be further advised that any unresolved grievances may be directed to the Bureau for Private Postsecondary Education, 2535 Capitol Oaks Drive, Suite 400, Sacramento, CA 95833.

## **Academic Integrity**

CASBU is dedicated to learning and research, and is committed to truth and accuracy. Integrity and intellectual honesty in scholarship and scientific investigation is, therefore, of great importance to the University community. These standards require intellectual honesty in conducting research, writing of research results and relations with colleagues. Academic misconduct includes cheating, plagiarism, falsification of data, etc. The University reserves the right to take any appropriate disciplinary action at its discretion that may range from informal guidance and counseling to expulsion from the University depending upon the severity and circumstances of the offense.

## **Confidentiality of Student Records**

CASBU complies fully with the Faculty Educational Rights and Privacy Act of 1974, and shall not release student records to any person unless permitted and/or required by law. CASBU will safely keep student records for five years onsite. However, student transcripts are maintained permanently.

Certain records are excluded by law from inspection. Specifically, those created or maintained by a physician, psychologist or psychiatrist, in connection with the treatment or counseling of a student. Students may ask for a copy of their records at the Office of Admissions and Records. Students may direct complaints regarding their academic records to the Registrar.

### **Nondiscrimination Policy**

The commitment of CASBU to the most fundamental principles of academic freedom, equality of opportunity, and human dignity requires that decisions involving students and employees be based on individual merit and be free from invidious discrimination in all its forms, whether or not specifically prohibited by law.

The policy of CASBU is to comply fully with applicable federal and state nondiscrimination and equal opportunity laws, orders and regulations. CASBU will not discriminate in programs and activities against any person because of race, color, religion, gender, national origin, ancestry, age, marital status, handicap, unfavorable discharge from the military, or status as disabled veteran or veteran of Vietnam era. This nondiscrimination policy applies to admission, employment, and access to and treatment in University programs and activities.

Complaints of invidious discrimination prohibited by University Non-Discrimination Policy shall be resolved exclusively within existing CASBU procedures.

### **Sexual Harassment Policy**

Sexual harassment is defined by federal and state laws and regulations, including but not limited to any unwanted sexual gesture, physical contact, or statement that is offensive, humiliating, or any interference with required tasks or career opportunities at CASBU.

CASBU does not tolerate sexual harassment of students or employees and will cooperate with governments, public services or agents, and law enforcement agencies to provide remedies when such harassment is discovered or reported.

### **Encumbrance of Registration and Records**

Students who fail to pay tuition or fees in full will not be permitted to register, will not be entitled to receive an official transcript of their units, will not be entitled to receive their diplomas, and will not be entitled to receive certification for practical training for foreign students until their indebtedness has been paid.

## **DEGREE PROGRAMS & REQUIREMENTS**

CASBU's graduate programs are designed to prepare students for the practice of computer science and business administration at a professional level. In addition to courses teaching the fundamentals of the subject matter, each degree curriculum is designed to incorporate Silicon Valley's major innovations in computer engineering, enterprise management, and global business development.

As Silicon Valley is a dynamic and fast changing high-technology hub where fierce competition among businesses is the norm, employers are more demanding on workers' qualifications. Job seekers in the Valley are required to be well prepared in their background training as well as continued education. CASBU's hands-on, interactive, learning model ensures that graduates have the requisite knowledge, practical experience, and professional competence to succeed in the Valley's job market.

CASBU's curriculum committees in various disciplines hold regular meetings to ensure that the curriculum design and facility support in hardware and software meets or exceeds the industry standards. Further, faculty members must have had previous or current industry experience and are equipped with up-to-date knowledge and skills in their teaching subjects.

### **DEGREE TITLES AND SPECIALIZATIONS**

- 1.) Master of Business Administration (MBA)
- 2.) Master of Science in Computer Science (MSCS)
- 3.) Master of Science in Electronic Engineering (MSEE)
- 4.) Master of Science in Green Energy (MSGE)

## SCHOOL OF BUSINESS

CASBU School of Business offers Master's Degree programs in Business Administration. This educational program gives the leaders of tomorrow a competitive advantage with leadership and management skills, technical understanding and global perspectives that are needed to succeed in today's global, diverse, and dynamic business environment.

The MBA program focuses on developing an individual's interdisciplinary problem solving skills, interpersonal and communication skills, ability to adapt to changing information technology and business environments, spirit of entrepreneurial innovation, as well as ethical and professional values. Successful completion requires not only an understanding of the important functional skills in accounting, financial management, marketing, business law, economics, and business and project management, but also an understanding of modern information systems, Internet technology pertinent to e-commerce and e-business applications. A distinctive feature of CASBU's MBA program is its incorporation of the principles of sustainability, environmental stewardship, and social responsibility in each and every course as appropriate.

CASBU School of Business acknowledges the importance of integrating state-of-the-art real-world business management tools such as the ERP (Enterprise Resource Planning) software suites, Business Analytics packages, and in-depth business Case Studies in its MBA Curriculum. CASBU's students have access to both open source software such as OpenTaps, OpenERP, and Jaspersoft as well as the well-known commercial suites like SAP and analytic software SPSS. Our MBA students work under the close supervision of a faculty SME (Subject Matter Expert) expert to learn the use of these tools in an enterprise environment.

### Faculty

CASBU's emphasis on a community of scholars and integrated education attracts faculty who are committed to their students' intellectual and skills development. While the minimum qualification for a CASBU faculty is a master's degree in the subject matter, more than fifty percent of our faculties hold Doctorial Degrees. All of business faculty members also bring their extensive professional experience and enthusiasm to helping the students develop critical thinking skills and practical business problem solving approaches..

### Objectives

**Problem Solving:** Each student will be able to systematically diagnose problems and/or opportunities, as it applies to dynamic business settings, and develop alternative courses of actions to resolve the problems.

**Strategic Thinking:** Each student will develop an understanding of strategic management and decision making. Students will be able to develop, implement, assess, and refine a strategic plan in a business setting.

**Organizational Change:** Each student will be able to systematically diagnose an organization's environment and operations to identify needed changes and to develop plans to successfully implement those changes in ways that achieve the organization's goal(s).

**International/Global:** Each student will have an understanding of global influences on business decisions/plans and/or develop plans for managing a business in a global environment.

**Teamwork:** Ability to collaboratively work in cross-functional teams is highly valued by today's global business operations. At CASBU students hone their collaborative skills by working on group projects in each of the program courses. Each student's leadership skills are developed. Students will thus be able to contribute to the success of his/her Team Project by occupying a leadership role and/or by contributing as a team member, as well as consensus development

## **Master of Business Administration (MBA)**

### **Objectives**

The broad objective of the program is to provide students with the foundations in content and competencies that will support student's career development in the business field.

Specifically, CASBU MBA program is designed to provide students the opportunity:

- (1) to understand the business as an integrated systems, by providing a knowledge base of both interdisciplinary business theories and application techniques;
- (2) to train and to develop practical management skills in a chosen area of concentration for career development;
- (3) to develop problem solving skills including the ability to analyze complex situations, utilize facts and evidence in drawing conclusions, apply quantitative decision theories, and adapt innovative solutions to the challenges of the diverse, multicultural, and global business community.

### **MBA Background Preparation**

Students admitted to the MBA degree program are required to have proper business background preparation for taking the graduate level coursework. The student must clear all deficiencies before being allowed to take the degree required courses. A student with deficiency in any required background subject must clear it by either:

taking courses for credits at CASBU and earning a grade of at least C- or higher or

taking and passing the appropriate preparatory module of studies.

With advance approval by the Academic Review Committee, the student may be allowed to take proficiency exams to clear his/her background requirements. In addition, English proficiency is also required. (Please refer to the section on "English Proficiency Requirement" in this Catalog.)

The following are the required background subjects (or their equivalents):

Management and Business Law

Economics and Marketing

Accounting and Finance

Quantitative Analysis and Information Technologies

### **MBA Curriculum**

The MBA program requires a minimum of 36 semester units of graduate study. A maximum of four 400A level courses are allowed to count towards graduation units. Before the student takes any one of the courses below he/she must meet the prerequisite requirements.

#### **1) Required Courses (12.0 units)**

The required courses provide a base for interdisciplinary business theories and techniques and decision-making methodology. A student must take the following courses to complete the mandatory graduate course requirement:

MGT511	Human Resources Management
BUS520	Quantitative Methods for Business
MGT516	Production and Operations Management
FIN520	Financial Management



## 2) Area of Concentration (12.0 units)

Apart from required graduate courses in section 1, students must additionally select an area of concentration and complete at least 12 units (4 courses) in the chosen concentration area. This is to ensure the student is competent in the selected area. The courses taken to fulfill the concentration requirement must not overlap the courses taken for the above Foundation Courses requirement. As new courses are also offered between publications of the university catalogs, the students are advised to refer to the "Concentration Area Course Tables" published with each release of the semester class schedule to select courses for meeting the concentration area requirements.

### **Area A. Project Management**

(Prerequisites: Advanced graduate standing)

Required courses:

MGT520	Project and Risk Management
MGT540	Managing for Quality Improvement
MGT552	Technology Product Management and Marketing
MGT554	Global Outsourcing Project Management

### **Area B. Global Business and Marketing**

MKT460A	Marketing Management
MKT551	Strategic Marketing
MKT552	International Marketing
MKT555	International Trade & Operations

## 3) Electives (12.0 Units)

Students may elect graduate-level courses 4XXA or 500-level, and higher courses in any discipline as electives to meet the elective requirements. Prerequisite requirements must be met when taking any course.

## **Graduation Requirements**

A minimum of 36 units is required, 12 from each of the following categories:

- 1) Required Courses
- 2) Concentration Courses
- 3) Elective Courses

Students must also makeup for any background deficiencies by taking additional courses. A grade of "B-" or better must be earned in all basic courses and area of concentration, and a grade of "C-" must be earned for all elective courses. GPA 3.0 or better is required, and students must be in good standing - clear financial, library and other school records - with the university. After fulfilling the requirements stated above, the student may file a petition for graduation and if approved, may graduate.

## **Concentration of Study and Career Planning**

CASBU MBA program provides an opportunity for student to choose between two areas of concentration including

- a) Project Management
- b) Global Business and Marketing

All graduate students are required to choose a concentration area of study to gain in-depth understanding of the chosen field and plan for their professional career track. Students in the MBA program at CASBU are advised to plan for their studies and choose a concentration area early. Before or upon completing 12 units in graduate course work, the student must choose a concentration area. Students are advised to discuss their study plans, business trends, and job market with the assigned Academic Counselor. The students are also encouraged to work with Student Services counselors to prepare their resumes and participate in job search activities when they are ready for such a pursuit.



## **Doctor of Business Administration (D.B.A.)**

### **Objectives**

The DBA degree program is intended to develop the student's ability in advanced academic study, practical research, and professional expertise in business administration. The program aims to cultivate leadership in modern global and green business development and management. Research emphases are in the fields of global economy, finance, business decision making, green business policy and strategy, as well as broad digital business intelligence and e-business applications.

### **DBA Background Preparation**

Students admitted into the DBA degree program are required to have proper business background preparation for taking the graduate level coursework. The student must clear all deficiencies before taking the degree required courses. A student with deficiency in any required background subject is required to clear it by taking and passing the appropriate preparatory module course. With advance approval by the academic review committee, the student may be allowed to take a proficiency exam to clear any deficiency subject. The student must also follow the English requirement described in the chapter on Admission Policies.

The following are the four business preparatory modules covering all the required background subjects:

Preparatory Module A (PBUS01): Essentials of Management and Business Law

Preparatory Module B (PBUS02): Essentials of Economics and Marketing

Preparatory Module C (PBUS03): Essentials of Accounting and Finance

Preparatory Module D (PBUS04): Essentials of Quantitative Analysis and Information Technology

### **D.B.A. Curriculum**

A minimum of 90 semester credits of graduate study are required for the D.B.A. program. Among them, 84 credits are required to be graduate course work and a minimum of 12 credits are in doctoral dissertation or capstone research project work. The student must meet prerequisite requirements when taking any of the following courses.

#### **I. Foundation Requirements** (First two years of study - 36 credits)

*(Foundation in enterprise management and information systems, quantitative analysis)*

Courses listed in this section should be completed by the student in the first 1-2 years of study in the program.

	<b>Courses</b>	<b>Credits</b>
IT450G	Enterprise Information System Fundamentals	(3)
MGT461A	Organizational Behavior and Management	(3)
MGT516	Production and Operations Management	(3)
MGT491A	Entrepreneurship and Venture Business	(3)
MKT460A	Marketing Management	(3)
BUS520	Quantitative Methods for Business	(3)
FIN520	Financial Management	(3)
GBM500	Green Business Management	(3)
MGT511	Human Resource Management	(3)
MGT530	Logistics and Operations Management	(3)
MGT535	Management of Innovation	(3)
MGT552	Technology Product Management and Marketing	(3)

## II. Core Requirements (Second to third years of study – 18 credits)

Following the foundation coursework, the student must take advanced level graduate courses, a series of two research methodology courses, as well as courses to prepare breadth of study for further mastery of the subjects of interest and in-depth understanding of related research. Courses described in this section, especially the Research Methodology courses, should be taken by the student immediately following the required foundation courses described in section I.

The student must also submit and present his/her Preliminary Proposal to the DBA Academic Review Committee and receive the committee's approval to proceed in the DBA program.

<u>Courses</u>		<u>Credits</u>
DBA601	Research Methodology - I	(3)
DBA602	Research Methodology - II	(3)
FIN568	Corporate Finance	(3)
LAW571	Modern Law of Corporations	(3)
MGT520	Project Management	(3)
MKT551	Strategic Marketing	(3)

## III. Electives (Third to fourth years of study - 24 credits)

The student may take any advanced graduate courses to meet the elective requirements. However, doctoral candidates are encouraged to take concentrated course work to address their career development plan or research interests.

Practicum: When applicable, the student may take Curricular Practicum courses and engage in practical training to work on company projects which are directly related to the student's dissertation research or course of study. The student must observe the rules required for taking the practicum courses. Students without prior practical experience in related fields are required to engage in curricular practicum.

## IV. Doctoral Dissertation (Fourth to fifth years of study - 12 credits)

A Dissertation Committee (DC) must be formed and approved by the Doctoral Advisory Committee before the student starts his/her doctoral research. The doctoral candidate is required to earn a minimum of 12 units in the work towards completion of doctoral dissertation to meet the graduation requirement.

Dissertation proposal presentation and dissertation defense requirements are described in the DBA Student Handbook.

<u>Courses</u>	<u>Credits</u>
DBA698 Dissertation – I	(6)
DBA699 Dissertation – II	(6)

### **Changes in Degree Requirements**

CASBU policies and requirements are subject to change, and changes may not be immediately reflected on campus websites or publications. New degree requirements, however, will not be imposed retroactively on continuing students unless agreed upon by the students. If degree requirements are changed, students may complete their degree programs under the requirements in effect at the time of their initial enrollments (or readmission, if they have discontinued degree status). They have the option of electing to be governed by the new requirements, if they so desire and provided that all requirements of one catalog are met.

## **SCHOOL OF ENGINEERING**

The master's degree programs in the School of Engineering are designed for students who intend to pursue careers in the high-technology, electronics, or computer industry, as well as for those who desire a modern, general education based on the problems and the promises of a technological society. The environment in which students are educated is as important in shaping their future as their classroom experiences. The School of Engineering offers a friendly atmosphere and a variety of academic programs that have made CASBU engineering graduates highly valued in high-tech firms and the Bay Area communities.

### **Faculty**

All CASBU engineering faculty members possess the following qualities: advanced degrees earned in engineering and scientific disciplines, high-tech work experiences, and enthusiasm in teaching and helping the students. Engineering is not a homogeneous discipline; it requires many special talents. Some faculty members in the School are goal-oriented designers, concerned with teaching students how to solve problems -- how to synthesize relevant information and ideas and apply them in a creative, feasible design. Other engineering faculty members function more typically as method-oriented scientists, using the techniques of their disciplines in their teaching and research to investigate various natural and artificial phenomena.

### **Objectives**

To provide each student a goal-oriented education by tailoring each student's study plan based on the student's background and interests.

To provide in-depth professional training in a range of state-of-the-art specialty areas in electrical engineering, computer systems engineering, and computer science, equipping the student with both a theoretical background and practical experience in these disciplines.

To provide relevant laboratory experience throughout each program as an integral part of the education, emphasizing extensive use of simulation and hands-on practice in the learning process.

To nurture a learning environment which leads to professional values recognizing high quality and integrity in truly complete engineers.

To provide further advanced training and professional development for graduate students who wish to practice their profession with increased competence.

### **Graduation Requirements**

A minimum of 36 units of graduate-level course work are required for all master's degree programs. Additional coursework may be required for a student whose undergraduate degree program was in a discipline other than that of the master's degree program.

In each master degree engineering program, there are three categories of course requirements:

1. Required Graduate Courses
2. Area of Concentration Courses
3. Advanced Electives

A graduate student entering with undergraduate deficiencies must clear the deficiencies in the first few terms after joining CASBU. The student may clear a subject by either taking the course and earning a passing grade or passing a proficiency exam on the subject.

- Earn a grade of “B-” or better in all required and concentration area courses.
- Earn a grade of “C-” or better in all elective courses.
- Maintain overall G.P.A of 3.0 or better
- Maintain good standing with the university
- The student is approved to graduate after filing a petition for graduation

### **Concentration Area and Career Planning**

All graduate students pursuing engineering degrees at CASBU are advised to plan for their studies and choose a concentration area early. Upon completing 12 units in graduate course work, the student must choose a concentration area. Academic counselors are on-hand to assist the students to make their study plans and assess the technology trends and job market. The students are encouraged to utilize the online e-Career Center and work when they are ready for such a pursuit.

### **Master’s Project / Thesis**

Master’s degree students interested in research and development work may choose to take a 3 units master’s project or a 3-unit master’s thesis to fulfill the electives course for graduation requirement. Academic officers are available to answer questions regarding the information concerning the project/thesis requirements.

### **Advisors**

A faculty member serves as the project/thesis advisor to offer guidance to the student. The master’s thesis course may be registered as a two-part course, taking a total of two terms to complete. A student unable to complete the project/thesis in the term he/she is enrolled in the course is required to continue to enroll in the course the following semester until completion of the project or thesis. The student receives either an “S” or letter grade for satisfactory performance and earns the units or an “NP” grade for unsatisfactory performance without earning credit in each term the project is being conducted. Extra units earned for repeatedly taking the project/thesis course cannot substitute for other course requirements.

## **Master of Science in Electrical Engineering (MSEE)**

### **Background Preparation**

Students admitted in to the MSEE degree program are required to have the following Background preparation. A student with any deficiency is required to clear it by either (1) taking the course at CASBU and earning a grade of at least C or higher or (2) taking and passing a proficiency exam on the subject. The student must clear all deficiencies before attempting to enroll in graduate level courses.

#### **1. ELECTRICAL ENGINEERING SUBJECTS:**

Circuit theory and analysis (EE400, EE420)

Digital circuits and logic design (EE206, EE450)

Analog Circuits (EE431)

#### **2. COMPUTER SCIENCE SUBJECTS:**

Programming language and logic (CS414); Students choosing Embedded Engineering concentration also require a background in CS 460, CS470.

Unix/Linux operating system (CS440); Students choosing Embedded Engineering concentration also requires a background in CS490.

### **MSEE Curriculum**

A minimum of 36 semester units of graduate study are required for the MSEE Program. A maximum of four (4) 4xx courses (400 level courses with a designation taken as elective courses) are allowed to count towards graduation units. The student must meet prerequisite requirements when taking any of the following courses.

#### **1. Required Courses (12.0 Units)**

The required courses emphasize understanding the mathematics and modeling Techniques for circuits and other engineering systems, and the design of modern computers. A student must take the following courses to complete the mandatory graduate course requirement.

EE460	System Analysis and Simulations
EE468	Modern Software Techniques for Electrical Engineering
EE524	Advanced Computer Organization and Structure
EE525	Digital IC Design

#### **2. Area of Concentration (12.0 Units)**

In addition to the required graduate courses, a student must select an area of concentration and complete at least 12 units (four courses) listed in one chosen concentration area. This is to ensure the students competence in a selected area.

EE536	Advanced Digital IC Design
EE538	Advanced FPGA Design & Implementations
EE547	Analog/Mixed Signal IC Design
EE562	Application Specific Integrated Circuit Design

#### **3. Electives (12.0 Units)**

The student may elect graduate-level courses in any discipline, in or outside the chosen concentration area, to meet the elective requirements. Prerequisite requirements must be met when taking any courses. The student must observe the limits on the number of 4XXA level courses - no more than 4 courses may be taken.

### **MSEE TOTAL REQUIREMENTS**

**(36 units)**



## **Master of Science in Computer Science (MSCS)**

### **Background Preparation**

Students admitted in to the MSCS degree program are required to have the following background preparation. Students must clear all deficiencies before attempting to enroll in graduate level courses.

#### **1. ENGINEERING MATHEMATICS:**

MATH 210, MATH 220

#### **2. COMPUTER SCIENCE SUBJECTS:**

Programming languages and Data structures (CS414, CS460A, CS470A);

Operating systems (CS440, CS490A)

A student with deficiency in any required background subject must clear it by either:

- 1) taking courses for credits at CASBU and earning a grade of at least C or higher or
- 2) taking and passing a proficiency test.

### **MSCS Curriculum**

A minimum of 36 units of graduate study are required for the MSCS program. A maximum of four (4) 400 level courses (taken as elective courses) are allowed to count towards graduation units. The student must meet prerequisite requirements when taking any of the following courses.

#### **1. Required Courses (12.0 Units)**

The required courses emphasize understanding of (1) the principles and architecture of computer networks and (2) the design of modern operating systems. A student must take the following courses to complete the mandatory graduate course requirement. These two courses cannot be used to meet concentration area coursework requirements.

CS500	Network Engineering and Management
CS511	Computer Architecture
CS540	Java Programming & Internet Applications
CS546	Operating System Design

#### **2. Area of Concentration Requirements (12.0 Units)**

In addition to the required graduate courses, a student must complete 12 units (four courses) in his/her Area of Concentration.

CS542	Software Engineering
CS543	Advanced Computer Networks
CS572	Advanced Java Programming
CS560	.NET Programming

#### **3. Electives (12.0 Units)**

The student may elect graduate-level courses in any discipline, in or outside the chosen Concentration Area, to meet the elective requirements. The student must observe the limits on the number of 4XXA level courses - no more than 4 courses may be taken.

**MSCS TOTAL REQUIREMENTS**

**(36 Units)**



## **Master of Science in Data Science (MSDS)**

### **Background Preparation**

Students admitted in to the MSDS degree program are required to have the following background preparation. Students must clear all deficiencies before attempting to enroll in graduate level courses.

#### **3. ENGINEERING MATHEMATICS:**

Calculus, Statistics

#### **4. COMPUTER SCIENCE SUBJECTS:**

Programming languages (CS 414, CS 460A);

Operating systems (CS 440, CS 490A)

A student with deficiency in any required background subject must clear it by either:

- 3) taking courses for credits at CASBU and earning a grade of at least C or higher or
- 4) taking and passing a proficiency test.

### **MSDS Curriculum**

A minimum of 36 units of graduate study are required for the MSDS program. A maximum of four (4) 400 level courses (taken as elective courses) are allowed to count towards graduation units. The student must meet prerequisite requirements when taking any of the following courses.

#### **4. Required Courses (12.0 Units)**

The required courses emphasize understanding of (1) the principles of applied statistics and (2) programming and machine learning skills. A student must take the following courses to complete the mandatory graduate course requirement. These two courses cannot be used to meet concentration area coursework requirements.

#### **5. Area of Concentration Core Courses (12.0 Units)**

In addition to the required graduate courses, a student must complete 12 units (four courses) in his/her Area of Concentration.

##### **Area A. Computer Science**

DS 512      Applied Statistics  
DS 542      SAS & R Programming  
DS 578      Machine Learning  
DS 591      Business Analytics – Capstone

##### **Area B. Data Science**

DS 512      Applied Statistics  
DS 524      Introduction to Data Science  
DS 576      Marketing Analytics  
DS 591      Business Analytics – Capstone

#### **6. Electives (12.0 Units)**

The student may elect graduate-level courses in any discipline, in or outside the chosen Concentration Area, to meet the elective requirements. The student must observe the limits on the number of 4XXA level courses - no more than 4 courses may be taken.

**MSDS TOTAL REQUIREMENTS**

**(36 Units)**



# SCHOOL OF GREEN TECHNOLOGY

The main purpose of the School of Green Technology (SGT) is to create manpower through education in renewable energy technology and management, as well as fulfill educational elements that build the ability to think, analyze and evaluate. Currently SGT offers master's degree program in with concentration areas in:

- 1) Solar Energy Systems and Technologies
- 2) Fuel Cell Systems and Technologies
- 3) Bio-fuels, Bio-Mass, and Combined Cycle Systems
- 4) Wind and Wave Systems and Technologies

With a friendly school atmosphere and the unique multi-discipline program, our graduates are well prepared as future leaders in the rapidly growing green/renewable energy industry.

## Faculty

Our faculty members are first and foremost committed to the success of each individual student. All of our faculties have: advanced degrees earned in engineering and science disciplines, high-tech work experiences, and enthusiasm in teaching, helping, and mentoring the students.

Green technology is not a homogeneous discipline; it requires a multidisciplinary approach. Some faculty members in the school are goal-oriented designers, concerned with teaching students how to solve problems, how to synthesize relevant information and ideas and apply them in a creative, feasible design. Others are method-oriented scientists, using the techniques of their disciplines in their teaching and research to investigate the fundamental sciences that impact the understanding and development of novel and/or highly efficient renewable energy systems.

## Objectives

The school strives to foster and promote an environment conducive to teaching and learning excellence in green technologies. The objectives of the school are as follows:

To develop programs of study relevant to industrial and national needs

To produce skilled graduates in green technologies and management with deep theoretical understanding and significant hands-on practical experience

To provide relevant laboratory experience throughout each program as an integral part of the education, emphasizing extensive use of simulation and hands-on practice in the learning process

To train graduates who have strong fundamentals in relevant areas but at the same time are competent in their chosen field of study

To foster a culture of analytical thinking and practical problem solving skills

To provide each student a goal-oriented education by tailoring each student's study plan based on the student's background and interests.

## Graduation Requirements

A minimum of 36 units of graduate-level course work is required for the master's degree program, in which 18 units are from core courses, 9 from electives, and 9 from project/thesis. Students must also makeup for any background deficiencies by taking additional courses. A grade of "B-" or better must be earned in all core courses, a grade of "C" must be earned for all elective courses, and a grade of "P" (Pass) is required for project/thesis. GPA 2.0 or better is required, and students must be in good standings with the university. After fulfilling the requirements stated above, the student may file a petition for graduation and if approved, may graduate.



## **Concentration Area and Career Planning**

All graduate students pursuing MSGT degrees at CASBU are advised to plan for their studies and choose a concentration area early. Upon completing 18 units in core course work, the student must choose a concentration area. Academic counselors are on-hand to assist the students to make their study plans and assess the technology trend and job markets. The students are encouraged to utilize the online e-Career Center and work when they are ready for such a pursuit.

## **Advisor**

A faculty member serves as the project/thesis advisor to offer guidance to the student. The master's thesis course may be registered as a two-part course, taking a total of two terms to complete. A student unable to complete the project/thesis on time is required to continue to enroll in the course the following term until completion of the project or thesis. The student receives either an "S" for satisfactory performance and earns the units or an "NP" grade for unsatisfactory performance without earning credit in each term the project is being conducted. Extra units earned for repeatedly taking the project/thesis course cannot substitute for other course requirements.

## **About Green Technology Program**

Our green energy program helps students to be part of a thriving green energy industry. Join California South Bay University program in Solar Photovoltaic Design and Installation, and we will help you prepare for the Entry Level Certificate of Knowledge Exam for the North American Board of Certified Energy Practitioners (NABCEP). Passing the exam indicates industrial approval of professional knowledge of a PV system. Most importantly, our green energy school is accredited by Interstate Renewable Energy Council (IREC). And we always facilitate high quality education to our students for their professional training education.

**CASBU's Green Energy Program is accredited by: IREC**



## **Master of Science in Green Technology (MSGT)**

### **Background Preparation**

Students admitted in to the MSGE degree program are required to have the following background preparation. The following are the required background subjects:

#### **1. PHYSICS SUBJECTS:**

PHYS210; PHYS211

#### **2. MATHEMATICAL SUBJECTS:**

College level Mathematics in engineering majors (MATH211; MATH220)

#### **3. ENGINEERING SUBJECTS:**

EE206; EE340; EE420

A student with deficiency in any required background subject must clear it by either:

- 1) taking courses for credits at CASBU and earning a grade of at least C or higher or
- 2) taking and passing a proficiency test.

### **MSGT Curriculum**

Students need a total of 36 school units for graduation. The program consists of 4 required courses, 3 courses in an area of concentration, 2 elective courses, and a project-design thesis. Each course counts for 3 units, and the project-design thesis consists of 9 units.

#### **1. Required Courses (12 units)**

The required courses provide a base for interdisciplinary studies in solar energy theories, techniques, and system designs. A student must take the following courses to complete the graduate course requirement:

MSGT501	Introduction to Solar Energy Technologies
MSGT502	Principles of Electric Circuits and Electrical Power Systems
MSGT503	Physics of Solar Cells
MSGT604	Solar Cell Electronic Materials and Devices

#### **2. Area of Concentration**

**(9 units):**

In addition to the four basic graduate courses in section 1, a student must select an area of concentration and complete at least 6 units (two courses) listed in one chosen concentration area. This is to ensure the students competence in a selected area. As new courses are also offered between publications of school catalogs, the students are advised to refer to the "Concentration area courses tables published with each release of the semester class schedule to select courses for meeting the concentration area requirements.

#### **Concentration A: Photovoltaic Technology**

MSGT505	Solar Power System: Design, Analysis, and Installation
MSGT506	Photovoltaic Manufacturing and R&D
MSGT602	Thin Film Photovoltaics
MSGT504	Photovoltaic Technology Development, Measurement, and Characterization

#### **Concentration B: Renewable Energy Economics and Management**

MSGT603	Solar Thermal Technologies
MSGT605	Energy Economics, Management, and Policy



### **3. Elective Courses (6 units)**

Currently seven courses are available electives. As new courses are offered between publications of the university catalogs, the students are advised to refer to the “Elective Course Tables” published with each release of the class schedule to select courses.

MSGT505	Solar Power System: Design, Analysis, and Installation
MSGT506	Photovoltaic Manufacturing and R&D
MSGT601	High-Performance Photovoltaics
MSGT602	Thin Film Photovoltaics
MSGT603	Solar Thermal Technologies
MSGT604	Solar Cell Electronic Materials and Devices
MSGT605	Energy Economics, Management, and Policy

### **4. Project/Thesis (9 units)**

The Thesis/Project is carried out in the last two sessions of the MSGT degree course for full-time students. Six hours per week in the first session, and twelve hours per week in the second session are devoted to directed laboratory and research work on an approved subject under guidance of members of the lecturing staff. Part-time students may need to attend the University full-time in their final session or attend for one further part-time session, if facilities are not available for the thesis to be done at work. Generally, student thesis will involve the design and construction of experimental apparatus together with laboratory tests. A written thesis report must be submitted at the end of each session. Current listed projects are:

- Device Physics: Solar Cell Structure
- Remote Area Power Supply Design
- Hybrid System Design
- Photovoltaic Water Pumping
- Grid Interactive Photovoltaic System
- Building Integrated Photovoltaic
- Economic Issues for Photovoltaics
- Government Policy Issues for Photovoltaics
- Photovoltaic for Developing World

### **MSGT TOTAL REQUIREMENT (36 UNITS)**



## **Solar Photovoltaic Design and Installation Certificate Program**

This course is primarily for those who intend to pursue certification as a Solar Photovoltaic System Installer. Accredited by Interstate Renewable Energy Council (IREC), this program will provide student with knowledge and skills to help you prepare for employment in the Photovoltaic Industry as an installer, system designer. Electrical Contractors will find the course useful to expand their knowledge and skills to install Code-compliant Photovoltaic systems.

The course is based on the PV Installer Task Analysis developed by the North American Board of Certified Energy Practitioners (NABCEP), and covers many of the skills and knowledge required of a Photovoltaic System Installer.

Upon completion of this course, the student will be able to:

Demonstrate knowledge and application of key solar electric system terms and concepts.

Know basic safety procedures for working around solar electric systems.

Know the basic components that make up a solar system.

Size & design a simple photovoltaic system.

Register to take an industry-designed examination.

### **Learning Objectives:**

Learn markets and applications for photovoltaic systems.

Identify safety hazards of photovoltaic systems; identify practices and protective equipment used during photovoltaic system installation and maintenance.

Define basic electrical terms and calculate simple circuit values.

Define and demonstrate solar energy fundamentals.

Learn photovoltaic module fundamentals.

Describe purpose and operation of photovoltaic system components.

Calculate photovoltaic system sizing.

Understand photovoltaic system electrical design.

Understand photovoltaic system mechanical design.

Understand NEC code guidelines for solar systems.

Describe photovoltaic system performance analysis and troubleshooting.



## **SCHOOL OF LIFE SCIENCE**

CASBU School of Life Science offers Master Degree programs in Biotechnology Management. In the School of Life Science, we are actively engaged in advancing research and education and integrated business perspective on our courses of study. CASBU's programs are aimed to equip graduates with the knowledge and skills they need to stay abreast of the exciting development of life sciences.

Classroom-knowledge aside, student will also gain hands-on experience in the school's laboratories and even get the chance to work on both in-house as well as commercial research project.

With this degree, graduates can look forward to pursuing an enormous diversity of careers in research and in clinical laboratories as well as biomedical, pharmaceutical and biologics industries.

### **Faculty**

Our enthusiastic faculty is committed to advancing scientific knowledge and to educating, training, and fostering the career development of our graduate students. We currently offer master degree with concentrations in Biotechnology Management. With at least hold master degree, more than fifty percent of faculties hold Ph.D., CASBU faculties are more than capable to advise, instruct, teach and provide students with advance knowledge in business discipline. All of business faculty members also bring their extensive work experience and enthusiasm in teaching and helping the students to solve problems and to increase student's academic learning experience.

## **Master of Science in Biotechnology Management (MSBM)**

Biotechnology, in the broadest sense, involves the use of living organisms or cell processes to make useful products. The major thrust of the biotechnology industry has been in area of drug development, human and animal nutrition, agricultural chemicals and environmental protection.

Biotechnology applications are now reaching into industries such as forestry, fisheries, agriculture, clinical medicine, diagnostic medicine, home health care, forensics, paternity testing, food preparation, and ranching. This new program will provide students with hands-on experience in this emerging high-tech area and prepare them to work in area industries, or to go on to medical, professional or academic programs. Biotechnology is concerned with many areas but the primary course work for this program will be centered around cellular chemistry, heredity and genetics. This will be expanded into areas such as biochemistry, antibodies, gene expression, protein synthesis and recovery, amino-acid and DNA sequencing, gene manipulation and modification, PCR technology and molecular genetics.

### **Objective**

The biotechnology major is well suited for careers in business development, marketing, and finance in biotech and pharmaceutical companies. The comprehensive understanding of the industry's unique business and technical issues also supports careers in life-science driven consulting, banking, and venture capital. Students are advised to complement their industry education with a functional major such as marketing, finance, or management and strategy.

Specifically, CASBU MSBM program is designed to provide students the opportunity:

- (1) To have a comprehensive training in the state-of -the-art techniques and methodologies used in biotechnology
- (2) To think independently and solve problems
- (3) To prepare for further graduate studies
- (4) To prepare for supervisory level positions in the biotechnology industry.

### **Graduation Requirements**

A minimum of 36 units is required, from each of the following categories, Basic courses, Electives, Area of Concentration and Master's Project. Students must also makeup for any background deficiencies by taking additional courses even if 400A level courses may be used as elective units. A grade of "B-" or better must be earned in all basic courses and area of concentration, and a grade of "C-" must be earned for all elective courses. GPA 3.0 or better is required, and students must be in good standings - clear financial, library and other school records - with the university. After fulfilling the requirements stated above, the student may file a petition for graduation and if approved, may graduate.

### **MSBM Background Preparation**

Students admitted in to the MSBM degree program are required to have the following background preparation. A student with any deficiency is required to clear it by either (1) taking the course at other schools and earning a grade of at least C or higher or (2) taking and passing a proficiency before attempting to enroll in graduate level courses.

#### **1) BIOLOGY SUBJECTS:**

MSBM 500 Protein Engineering  
MSBM 501 Molecular Biology

## 2) TECHNOLOGY SUBJECTS:

MSBM 506 Principles and Practice of Biotechnology

MSBM 504 Biotechnology Operations

### MSBM Curriculum

A minimum of 36 semester units of graduate study are required for the MSBM program. Students must complete 12 credit hours in basic courses, 12 credit hours in area of concentration, 10 credit hours in faculty mentored research, and 2 credit hours in seminar for a total of 36 credit hours. The curricular order and a brief description of courses are specified below. The student must meet prerequisite requirements when taking any of the following courses.

#### 1.) Basic Course (12.0 units)

A student must take the following four courses to complete the required graduate course requirement.

These four courses cannot be used to meet concentration course work requirements.

MSBM 501	Molecular Biology
MSBM 502	Biotechnology I—Genetic Engineering
MSBM 520	Advanced Cell Biology
MSBM 512	Biotechnology II—Protein Structure & Function

#### 2.) Area of Concentration (12.0 units)

In addition to the four required graduate courses in section 1.), a student must select an area of concentration area. This is to ensure the students competence in a selected area. As new courses are also offered between publications of school catalogs, the students are advised to refer of the "Concentration area course tables" published with each release of the semester class schedule to select courses for meeting the concentration area requirements.

#### Area Biotechnology Management

##### Required Courses:

MSBM 571	Techniques in Biotechnology I
MSBM 572	Techniques in Biotechnology II
MSBM 503	Business of Biotechnology: Fundamentals
MSBM 504	Biotechnology Operations

#### 3.) Faculty Mentored Master Thesis Research (10.0 Units)

An independent research project that is designed by the student with assistance from the Thesis advisor and acceptable to the Thesis committee.

##### Master's Thesis Project:

MSBM 600	Thesis Proposal
MSBM 600	Master Thesis

Publication: Each Master of Biotechnology graduate is encouraged to publish their research papers either online in the public domain or through professional journals and periodicals worldwide.

4.)	Seminars MSBM 591 MSBM 592	(2.0 Units)
		Seminar I
		Seminar II

### MSBM TOTAL REQUIREMENTS (36 units)

## **English as Second Language Program**

### **Introduction**

California South Bay University offers English as a Second Language (ESL) classes that focus on teaching "real world" communication skills. It designed to equip students with the English language proficiency required to communicate effectively across the entire range of linguistic environments - academic, professional, cultural, commercial, personal and social - encountered in American society. The program operates by employing a graduated series of levels incorporating increasingly complex conversational, compositional and grammatical forms, as well as by introducing students to some of the major social, cultural and philosophical tenets of the American perspective, providing students with both the language and the insight necessary for realizing their full potential as participants in the American experience.

Students of ESL classes expected to benefit from the object-oriented Curriculum teaches language, academic, and cultural skills for immediate use.

The Accent Reduction helps learners speak American English confidently, while The Authentic Language Practice allows students to apply what they have learned. Each course is divided in to two major component,

(a) reading comprehension, grammar and written composition and (b) listening comprehension, oral expression and pronunciation. Listening & Conversation enables learners to effectively communicate with native speakers of American English, Grammar & Writing trains learners to use English professionally, Communication Workshops provide learners with individualized practice and Speech & Presentation prepares learners for advanced studies and professional careers.

### **Levels of Instruction**

The ESL classes are offered at the following levels:

Beginner I– ESL 100 Level Classes

Beginner II- ESL 200 Level Classes

Intermediate - ESL 300 Level Classes

Advanced - ESL 400 Level Classes

\* Completion of ESL program meets CASBU's degree program admissions requirement for English.

### **Application Requirements**

To apply for ESL admission at California South Bay University, an applicant must submit the following items:

1. An application form;
2. Nonrefundable application fee
3. Copy of photo ID

\*Please contact our admission counselor for more information about CASBU ESL Program and application process.



## CASBU COURSE DESCRIPTION

Notes on course number: \_\_\_\_\_

Course No.	Description	Course No.	Description
100-199	Freshmen level courses	200-299	Sophomore level courses
300-399	Junior level courses	400-499	Senior level courses
400-499	Mezzanine courses for graduates	500-799	Graduate level courses

Instructor's consent/approval: prerequisite containing the phrase of "instructor's consent" or "instructor's approval" is an option for the student to request the instructor to assess the student's ability and background in the listed prerequisite subjects when the student has acquired the background through other means, such as work or other experience.

Graduate standing: Graduate students who have started to take graduate level courses.

Advanced graduate standing: Graduate students who have completed at least two semesters' graduate coursework

### **Accounting**

#### **ACC 320 Principles of Accounting (3.0 Units)**

This course teaches students the basic foundations for accounting principles. The 6 main topics are: an introduction to basic elements of financial accounting, setting up general ledger accounts and using a general journaling, how to record and analyze financial transactions, various types of accounts and how to use them, and accounting methods for different types of business. Students are provided an introduction to General Accepted Accounting Principles and principles of costing. SAP Business One concepts will be introduced. Students may also use certain kinds of accounting software.

Prerequisite: Instructor's Consent

#### **ACC 321 Accounting Lab (2.0 Units)**

This course is an introduction to Quickbooks. The main objective of this course is to introduce students to the basic features in QuickBooks and give students an opportunity for hands-on practice. Students will learn about the types of information needed to be tracked in business or on the job, and students will see how to enter that information and track it in QuickBooks.

Prerequisite: Instructor's Consent

#### **ACC 410 Cost Accounting (3.0 Units)**

Students taking this course are taught the relationships among cost, volume, and profit, the process and job-order methods; standard costs, activity based costing, variance analysis, quantitative method and models used in management. It also teaches the students how to use their fundamental knowledge in decision making in a business.

Prerequisite: ACC320 or instructor's consent

#### **ACC 460A Intermediate Accounting (3.0 Units)**

This course is only for students who are interested in becoming accounting professionals. This course builds on the knowledge obtained in ACC320, ACC321, and ACC410. Students are taught how to understand financial accounting and accounting standards, required disclosures, financial statement preparation, and an in depth study of current assets, how to calculate revenues and fixed assets. Students are exposed to advanced GAAP and FASB, as well as Sarbanes-Oxley reporting regulations. Students will



be taught how to use popular accounting tools for both homework and exercises.

Prerequisite: ACC320 and FIN410 or instructor's consent

**ACC 510 Introduction to Taxation (3.0 Units)**

This course covers taxation concepts applied to individual's income, deductions, units, property transactions, and tax accounting methods. An understanding of the concepts will enable students to prepare quality individual income tax returns as a professional. The course will also cover taxation rules governing financial planning.

Prerequisite: ACC320 or instructor's consent

**ACC 540 Auditing (3.0 Units)**

In this course, students learn auditing techniques with an emphasis on the Electronic Data Processing environment, audit procedures, practice and programs; working paper preparation and report writing. The students will gain experience using electronic auditing software to work on their homework and projects.

Prerequisite: ACC212 or instructor's consent

**ACC 550 Accounting Information Systems (3.0 Units)**

This course provides a conceptual framework for contemporary accounting information systems and accounting cycles. It covers database concepts, internal control, transaction cycle and business process, expenditure cycle, conversion cycle, general ledger, and enterprise resource-planning systems. Students may be introduced to SAP Business One for data manipulation and report generation. Prerequisite:

ACC212 or instructor's consent

## **Business**

**BUS 400 Business Communication (3.0 Units)**

The course aims at improving students' active listening, speaking and nonverbal communication skills. Students will be introduced to the idea of how business communication skills are essential for daily business and professional activities. Students will learn various business writings encompassing professional memo writing, e-mail format and filing, business letters and correspondence, and business reports.

Prerequisites: Placement by English exam or successful completion of advanced ESL classes.

**BUS 420 Principles of Public Relations (3.0 Units)**

The primary goal of this course is to familiarize students with the basic concepts and principles of public relations. As public relations has become more and more important in contemporary society, taking this course will give students an overview of how public relations as a managerial function that contributes to organizational effectiveness and public perception. The lectures and exercises and/or assignments will help students understand how public relations serves as a communicative venue in nurturing a good relationship between an organization and its various stakeholders, thereby facilitating organizations' effort in accomplishing their ultimate goals.

Prerequisites: Instructor's approval

**BUS 460A Professional Development (3.0 Units)**

This course aim at helping student develops his/her professional career. Topics cover personality assessment, professional ethics, understanding the business professional world, recognizing company culture and organizational structure, understanding company policies and their relationship to federal and state laws, how to survive office politics, career paths and pitfalls, resume writing, cover letters, and interview techniques.

Prerequisites: ENGL101 or instructor's approval

**BUS 520 Quantitative Methods for Business (3.0 Units)**

The focus of the course will be dedicated to quantitative methods of management science and operations research, using quantitative analysis software for management problems. The instructor will introduce the modern business decision-making methodologies and develop students' ability to analyze complex systems. Students are exposed to problem solving using descriptive statistics and reporting. The students learn how to format models from real-world problems so they can be solved using computer techniques, how to check for errors in problem formulation and data input to minimize erroneous solutions, and how to apply the techniques to real-world problems

Prerequisites: Graduate standing or instructor's consent

**BUS 600 Special Topics (3.0 Units)**

Special topics courses are offered to students in business administration programs by current faculty members or invited guest speakers. The aim is to expose the students to special topics related to their studies. These courses are conducted the same way as regular courses.

Prerequisites: BUS520 or instructor's approval

**Computer System Engineering****CS 360 Computer Fundamentals (3.0 Units)**

This is an introductory computer literacy course introducing the students to the basics of computer hardware structure, the World Wide Web, and MS Windows software tools. Topics include introduction to computer components, input/output, data storage, the Internet and the WWW, operating systems, data management and databases, software program development and programming languages, and ethics for technical professionals. Students also learn to use the latest Microsoft Office tools Word, Excel, Access, PowerPoint, MS Visual Basic, and the use of the Internet and browsers. Hands-on exercises are required.

Prerequisite: instructor's consent

**CS 370 Computer Organization (3.0 Units)**

This course is designed to provide a fundamental understanding of the issues and challenges involved in designing and implementing modern computer systems. The primary goal is to help students become more skilled in their understanding of computer systems, including how the hardware and software interact with each other. This course provides an understanding of where computers came from and where they are going, as well as understanding their strengths and weaknesses, such as why compiled code will always execute faster than JAVA code. Subjects include: RISC vs. CISC CPU design approach, instruction sets, pipelining, instruction scheduling (branch prediction, speculative and out-of-order execution, etc), cache and storage hierarchy design. Additional topics include modern I/O architectures such as PCI, PCI-X, SATA, SCSI, USB, etc., and their importance on performance and compatibility.

Prerequisite: instructor's consent

**CS 414 Program Design and Analysis in C (4.0 Units)**

This course is designed to teach C language syntax rules and the analysis of a structured programming language, with emphasis on practical applications in engineering and business. Methods of testing and debugging well-structured programs in C are also covered. Topics include problem specification and analysis, writing-editing-compiling-linking a C program, data types, operators and expressions, selection and repetition, arrays, pointers, functions, text files, dynamic memory allocation, strings, structures and unions, binary files, and bitwise manipulation and preprocessor directives. Hands-on exercises are required and the weekly lab session is an integral part of this course. Prerequisite: CS360

**CS 420 Data Structures (3.0 Credit)**

This course teaches efficient use of data structures and algorithms to solve problems. Main topics are the logical relationship between data structures associated with a problem and the physical representation. Topics include introduction to algorithms and data organization, arrays, stacks, queues, single and double linked lists, trees, graphs, internal sorting, and hashing and heap structures. Prerequisite: CS414

**CS 440 Introduction to Unix/Linux (3.0 Units)**

This course is designed to familiarize the students with the UNIX/Linux environment. Topics include concepts of the UNIX/Linux operating systems, Shell commands, Visual editor, file manipulation and securities, UNIX utility commands, Shell features and environment, online manual, controlling user processes and managing jobs, introduction of Regular Expression and its usage with grep, sed, and awk UNIX power utilities, basic Shell programming techniques, large file management, and the user programming environment customization. Hands-on exercises are required.

Prerequisite: CS360 or instructor's consent

**CS 460A Data Structure (3.0 Units)**

This course is designed to teach efficient use of data structures and algorithms to solve problems. The topics in this course includes introduction to algorithms and data organization, arrays, stacks, queues, single and double linked lists, trees, graphs, internal sorting, hashing, and heap structures. Students study the logical relationship between data structures associated with a problem and the physical representation. Hands-on exercises are required.

Prerequisite: CS414 or instructor's consent

**CS 470A Object-Oriented Programming in C++ (3.0Units)**

This course is designed to develop students' abilities to design, code, and document application programs using object-oriented design and analysis concepts and methodology. Emphasis is on establishment of design objectives, criteria and specifications, processes of synthesis, analysis, construction, testing, and evaluation of open-ended problems. Topics include an introduction to general object-oriented programming as implemented in C++, data types, expressions, statements, functions, program scope, run-time memory allocation, function overloading, template functions, class mechanism, derivation, inheritance, and migration from C to C++. Hands-on exercises are required. Prerequisite: CS460A or instructor's consent

**CS 480A Compiler Design (3.0 Units)**

This course is designed to provide students with a fundamental knowledge of compilers and interpreters for modern computer languages. Topics include a study of modern computer languages, regular expressions, lexical analysis, parsing techniques, context-free grammars and syntax-directed translation. Prerequisite: CS420

**CS 490A Introduction to Operating Systems (3.0 Units)**

This course is designed to introduce students to basic concepts of modern operating systems; topics include processes, threads, microkernel, concurrency, memory management, file system. Hands on exercises are required.

Prerequisite: CS360 & CS460A or EE206 or instructor's approval

**CS 500 Network Engineering and Management (3.0 Units)**

This course is designed to prepare students to meet the current industry demands for network designs and the development of new network applications and services for business enterprises and the network providers that serve them. It offers theoretical and applied study of the design, configuration, and management of converged communication networks. Course will also provide students with thorough understanding of the technical and operational aspects of networks communication and network management.

Prerequisite: CS414 or instructor's consent

**CS 510 Network Engineering and Management (3.0 Units)**

This course is designed to prepare student to meet the current industry demands for network designs and the development of new network designs and the development of new network applications and services for business enterprises and the network providers that serve them. It offers theoretical and applied study of the design, configuration, and management of converged communication networks. Students will gain a thorough understanding of the technical and operational aspects of networks as well as the foundational theory of network communications and network management. Prerequisite: CS414 or Instructor's Consent

**CS 511 Computer Architecture (3.0 Units)**

This course focuses on the techniques of quantitative analysis and evaluation of modern computing systems, such as the selection of appropriate benchmarks to reveal and compare the performance of alternative design choices in system design. The emphasis is on the major component subsystems of high performance computers: Pipelining, instruction level parallelism, memory hierarchies, input/output, and network-oriented interconnections. Students are required to undertake a major computing system analysis and design project of their own choosing.

Prerequisite: Instructor's Consent

**CS 527 Database Design (3.0 Units)**

This is the first of a series designed to teach relational database concepts, design, and applications. Topics include database architecture, relational model, structured query language (SQL), data manipulation language (DML), data definition language (DDL), database design, ER modeling, database normalization, denormalization, and physical database design. Popular database systems, such as Oracle, Microsoft SQL server, and Postgres SQL Server are used for hands-on exercises and projects. Prerequisite: CS414 or Instructor's Consent

**CS 530 Computer Networks (3.0 Units)**

This course is designed to give students a global picture of computer networks. Topics include network layered models (OSI, TCP/IP), data communication basics, circuit switching, packet switching, routing and internetworking. Hands-on exercises are required.

Prerequisite: CS490A or instructor's consent

**CS 540 Java Programming and Internet Applications (3.0 Units)**

This course introduces students to the Java language, programming with object-oriented construct, GUI design and graphics programming and core Java libraries. Students learn Java language basics such as syntax and classes, inheritance, interfaces, reflection, graphics programming, event handling, user-interface components with Swing, Java applets, exception handling, stream, and files. Hands-on exercises are required.

Prerequisite: CS470A or instructor's consent

**CS 542 Software Engineering (3.0 Units)**

This course is designed to demonstrate the engineering approach to the development of large, high-quality software projects. Topics include software life cycle, development process, requirement specifications, design and testing techniques, verification and validation, and software management. Students learn to use project management tools, principles, and environment to facilitate development of software programs/systems. Hands-on exercises and projects are required. Prerequisite: CS470A or instructor's consent

**CS 543 Advanced Computer Networks (3.0 Units)**

This is the sequel to CS530 (Computer Networks), and is designed for an in-depth study of computer networks. Emphasis is on modern Internet technologies and implementations. Topics include a review of computer networks, OSI reference model, a study of emerging Ethernet technologies (Fast, Gigabit, IPv6), client and server implementation with socket programming, local and wide area networks, TCP/IP, routing, network protocol and architecture, Internet protocol, and IP addressing. Projects are required.

Prerequisite: CS530 or instructor's consent

**CS 546 Operating System Design (3.0 Units)**

This course offers graduate students an in-depth understanding and hands-on experience in modern operating system design and implementation. Topics include process, memory, file system, I/O, deadlocks, case studies of operating system implementations, modern distributed and network system architectures, communication and synchronization in distributed systems, threads and processor allocation, scheduling in distributed operating systems, distributed file systems, and case studies of modern distributed operating system design. Projects are required

Prerequisite: CS490A or instructor's consent

**CS 550 Unix/Linux System Programming (3.0 Units)**

This course is designed for students to gain fundamental knowledge of and hands on experience with programming in Unix/Linux environment. Students will learn to program in c with Unix/Linux system calls and other advanced topics such as Unix file system, process control, signals and inter process communications. Upon completion of this course, students would be able to develop real world Unix/Linux applications.

Prerequisite: CS440 or instructor's consent

**CS 555 Unix/Linux Network Programming (3.0 Units)**

This course is designed for graduate students to gain hands on experience in Unix/Linux programming. The students will learn to develop Unix/Linux network applications using a number of Unix/Linux network programming interface techniques including sockets, XTI, RPC. Topics include: an overview of transport layer, TCP sockets, UDP sockets, threads and client server design, XTI, RPC and Streams.

Prerequisite: CS440 or instructor's consent

**CS 560 .Net Web Programming (3.0 Units)**

This course provides students with the knowledge and skills needed to develop dynamic web-based applications using ASP.NET and gain an understanding of the new architecture behind ASP.NET. Topics include creating ASP.NET pages, creating Web custom controls and Web user controls, using validation controls and composite controls, using ADO.NET to access data from various data sources, configuring and securing a Web application, state management, error handling and debugging, and migrating existing web applications to ASP.NET.

Prerequisite: CS470A or instructor's consent

**CS 567 .Net Windows Programming (3.0 Units)**

The goal of this course is to provide students with the knowledge and skills they need to develop C# applications and components for the Microsoft .NET Platform, including Visual C#.NET Windows application development with Windows Forms and controls; user interfaces and navigation; error handling and debugging; data binding; consuming and manipulating data; components and .NET assemblies; Windows services; Remote; testing and debugging; application deployment and configuration. Hands-on practice is required.

Prerequisite: CS470A or instructor's consent

**CS 570 Algorithms (3.0 Units)**

This course provides an in-depth analysis and efficient use of algorithms to solve problems. Well-structured programs are studied; modular, top-down design is emphasized. Topics include the use of data structures techniques to design efficient algorithms and analyze their complexity, efficient implementation of combinatorial algorithms, sorting, searching, and geometric problems, and branch and bound algorithms.

Prerequisite: CS360 or instructor's consent

**CS 572 Advanced Java Programming (3.0 Units)**

This course is designed to give the students an in-depth understanding of Java programming techniques. The course focuses on advanced Java language features and packages which are essential for building a variety of application architectures. Topics include Java techniques of WAP, XML, JNI, thread, network programming, Servlet, JSP, JDBC, and internalization. Upon completion of this course, the students should be well prepared to create enterprise-wide, Java-centric solutions to client/server problems involving Java and networks. Each technology topic will cover its uses, implementation, and language issues. Students are required to implement a project for each Java technique.

Prerequisite: CS540 or instructor's consent

**CS 580 Oracle Database Administration (3.0Units)**

This course provides an in-depth understanding of the Oracle Database Management System. Emphasis is on the latest Oracle database architecture, database configuration and administration. Topics include logical/physical database layout, database server processes, database creation, various database physical

objects; client/server configuration, multi-threaded server configuration, database storage management, database security, database utilities, database monitoring, partitions, and database backup/recovery methods. Hands-on exercises are required.

Prerequisite: CS527 or instructor's consent

### **CS 587 Advanced Database Design and Development (3.0 Units)**

This course is intended for graduate students to further explore database server development and database tuning. The course specifically details procedural extensions to SQL to develop stored procedures, functions, packages and database triggers. In addition, it covers database performance tuning from application development point of view by exploring query optimizer, database hints, and various database access methods. Hands-on exercises are required.

Prerequisite: CS527 or instructor's consent

### **CS 588 Database and Internet Server Programming (3.0 Units)**

This course introduces current client/server data access concepts on the Internet. It covers the fundamental concepts of the 3-tier model, Internet database access, and major tools and techniques utilized in application development. Topics include N-tier model, JDBC with database applications, Java Servlet, JSP and JavaBean, WML, and XML. Hands-on exercises are an integral part of the course.

Prerequisite: CS527 or instructor's consent

### **CS 589 Mobile Computing for Android Mobile Devices (3.0 Units)**

Google's Android mobile phone software platform, recognized as the next major opportunity for application software developers, has the potential for removing the barriers to successful development and sales of a new generation of mobile phone applications. This course focuses on developing applications for Android, including map-based applications, camera-based applications, SMS, etc. Advanced development topics are also covered, including security, IPC, and certain advanced graphics and user interface techniques.

Prerequisite: CS543 or instructor's consent

### **CS 590 Developing Applications for Windows Mobile Environment (3.0 Units)**

This course focuses on the unique challenges, methods, tools, and technologies for using Windows Mobile to develop software applications for wireless and mobile devices, such as personal digital assistants (PDA) and smart mobile phones. Topics include user interface design for small-screen, multi-channel

devices, programming techniques and memory management for processing power, data synchronization for mobile databases, and wireless network programming.

Prerequisite: CS543 or instructor's consent

### **CS 592 Special Topics (3.0 Units)**

Special topics courses are offered to graduate students in Computer members or invited guest speakers to expose the students to emerging technologies related to their studies. These courses are conducted the same way as regular courses.

### **CS 607 Master's Thesis-I (3.0 Units)**

devi  
ces  
wit  
h  
limi  
ted  
me  
mor  
y  
and

Scie  
nce  
pro  
gra  
m  
by  
curr  
ent  
facu  
lty

The course is designed to develop the creativity of graduate students in Computer Science through the exercise of the design effort on a self-selected project. The design project must be open-ended, whereas the design approach must employ the modern design techniques and methodologies in the related fields. Completion of the design project entails 1) Formulation of a design problem statement including realistic constraints such as economic factors, safety, and reliability issues, 2) Design specifications, 3) Consideration of alternate solutions, 4) Manufacturing procedures and 5) Operation instructions. The research topic and proposal must be approved by the project advisor. The report format must be in accordance with CASBU's Project Style Guide and be approved by the advisor and tech editor. Upon completion of the project, the student is required to conduct an open-forum presentation of the project.

Prerequisite: instructor's consent

**CS 609B Master's Thesis-II (3.0 Units)**

This is a continuation of the first part of the master's thesis course CS607. At the beginning of the semester, the student should draw a conclusion on the research and development work for the project and begin to write a thesis report following the required format. The student should perform an analysis of the project work and results. Through this process, the student will gain in-depth knowledge of the selected subject and develop independent thinking and research capabilities, the report must be approved by the advisor and the tech editor. Upon completion of the project, the student is required to conduct an open-forum presentation of the project.

Prerequisite: instructor's consent

**CS 647 XML and Web Service Development (3.0 Units)**

Extensible Markup language (XML) is rapidly becoming the standard information description language, and has been used in almost all areas related to computer and information technologies, such as Internet, semiconductor, bioinformatics, etc. Its usage is expected to grow steadily. This course is designed to introduce students to XML based development of Web Services. Prerequisite: instructor's consent

**CS 688 Network Security in Wireless Systems (3.0 Units)**

A secure network is the fundamental requirement for network communication. Network security issues have become ever more important for any organization with network systems. This class addresses the security issue in accessing the network, including the security in wireless access. Many new proposals and technology have been developed in this field. The objectives of the class are to teach students the fundamentals in cryptography, the concept of security, and the practical use of virtual private networks (VPN). Topics include IPSec (IP Security), Web Security, VPN, and wireless network security. Some important RFCs are also covered for the students to understand the development process in the network industry.

Prerequisite: CS543 or instructor's consent

**Data Science****DS 512 Applied Statistics (3.0 Units)**

This course acts as a refresher to statistical reasoning, including sampling, elementary probability, statistical inference, and data analysis. This class focuses on mathematical reasoning and the solving of real-life problems, rather than theoretical skills. It will cover descriptive methods, such as frequency distributions and basic probability theory, factorials, combinations, permutations and probability laws. Topics include data analysis, correlation and regression, sampling and experimental design, basic probability (random variables, expected values, normal and binomial distributions), hypothesis testing and confidence intervals for means, proportions, and regression parameters. Prerequisites: Calculus

**DS 542 SAS & R Programming (3.0 Units)**

This course is designed for experienced programmers not yet familiar with SAS or R. It is composed by two sections, Section I: SAS Programming (8 weeks): Introduce students to data manipulation, presentation of data in graphical form, creation & modification of datasets, interpretation of output, writing of reports. This section prepares students for the SAS Base Certification exam. Students need to pass the SAS Base Certification exam in order to get credit for this class.

Section II: R Programming (7 weeks): This section covers applications of modern statistical methods using R, a free and open source statistical computing package with powerful yet intuitive graphic tools.

Students entering in this class are expected to have prior programming experience.

Prerequisites: CS414 -Program Design and Analysis or equivalent.

**DS 577 Machine Learning (3.0 Units)**

Machine learning is about making computers learn from experience. The ability to learn is key to most aspects of intelligent behavior, and in the modern world, machine learning techniques are the basis of many



software systems. Machine learning techniques are used in applications such as analyzing customer behavior, spam filters, analyzing customer purchase data, understanding natural language, and detecting fraudulent credit card transactions. This is a technical course on machine learning which gives an overview of many concepts, techniques, and algorithms in machine learning, beginning with topics such as classification and linear regression and ending up with more recent topics such as boosting, support vector machine and more. The course will give the student the basic ideas and intuition behind modern machine learning methods. Short programming assignments using R software include hands-on experiments with various learning algorithms, and a larger course project gives students a chance to dig into an area of their choice.

Students entering the class are expected to have a pre-existing knowledge of probability, linear algebra, statistics and algorithms.

Prerequisites: DS 512 Applied Statistics and DS 542 SAS & R Programming

### **DS 591 Data Science Capstone (3.0 Units)**

Students will learn how to think strategically about business systems and analytics within the context of a functioning organization. Classroom lectures and discussions are supplemented by multi-disciplinary real-life projects to design innovative business systems and analytics solutions. This course serves as the culminating experience in the Data Science Concentration. This is a unique course that is comprised of MBA students and MSCS students working together on project teams, each including one Project Manager (an MBA student) and 3-4 analysts (MSCS students) who work with partner companies to deliver solutions that meet their business goals.

This class can be taken up to two semesters for either 2 different 15-week projects or projects that extend 30 weeks.

Prerequisites: DS 577 Machine Learning

### **DS 535 Introduction to Big Data (3.0 Units)**

Big data is generated at large volume quickly in various types in our modern era. This course covers what is big data, why we have big data, what is the difference between traditional data and modern big data, where big data sources are, and how we may manage big data and transform them into useful information for different business purposes. The course also showcases the landscape of modern technologies in big data competition but with the focus on its business impact. Examples of extracting big data sources and analyzing them by modern technologies are demonstrated. This course is one of elective courses for data science concentration area under MBA program.

Prerequisites: Instructor's consent

### **DS 576 Marketing Analytics in the Era of Big Data (3.0 Units)**

This is a core competency course to train MBA major students who choose data science as their concentration area of marketing analytics strategies and tactics. The course explains differences between traditional business intelligence and modern big data analytics in terms of data sources, data management technical strategies, and data analytics related applications in various marketing situations. Marketing analytics cases are presented. Marketing related automated labs are assigned. The course also discusses data analytics implementation strategies under the corporation environment, so that MBA students better understand how to work with different levels of professionals as a team to process marketing data analytics for the improvement of the corporation business.

Prerequisites: Stat I or something equivalent

### **DS 532 Database Management (3.0 Units)**

This course introduces students to probability theory and statistical analysis, emphasizing applications to managerial decision problems. Topics include descriptive statistics, probability theory, sampling techniques, statistical estimation, hypothesis testing and simple and multiple regressions. Additional coverage may include exploratory data analysis, analysis of variance, and contingency tables using Excel. You will learn how to connect to SQL and Access Databases using VBA.

Prerequisites: Instructor's consent

**DS 538 Web Analytics (3.0 Units)**

This course aims to train students of web-based business data management skills through a very popular tool, Google Analytics. It covers what is Google Analytics from the business perspective, how to set up a Google Analytics account for specific business purposes from the user perspective, how to analyze the data from Google Analytics accounts from the data analyst perspective, and how to transform the data into useful information for various business results from the business consulting perspective. This course is one of the elective courses for data science concentration area under MBA program.

Prerequisites: Instructor's consent

**DS 565 SAS II (3.0 Units)**

This is an advanced course that uses SAS for data management and statistical analysis. The overall objective of this course is to prepare students to pass the SAS Advanced Programming certification test, and thereby obtain the Advanced Programmer for SAS Certification offered through the SAS Institute. Therefore, topics of the course mirror those appearing on the certification test: advanced programming techniques, macro programming, using SQL with SAS, and optimizing SAS programs. This course will concentrate on advanced programming such as text substitution in code, automating, querying and sub-setting data, summarizing and resending data, complex joins and merges. Prerequisites: 542 SAS & R Programming

**DS 580 Simulation Modeling: Creating Excel-based Applications for Decision Making (3.0 Units)**

This course will teach students how to create and use simulation models to make effective operational decisions for challenging real-world situations. This is a lab-oriented course in which students will learn by experiencing and practicing the process of simulation modeling. Students will create and use simulation models to analyze and make decisions for several different problems drawn from common business cases. The course will teach students how to use MS Excel and VBA to quickly translate real-world situations into simulation applications that provide invaluable support for decision making.

Prerequisites: Instructor's consent

**Electrical Engineering****EE 206 Digital Circuits and Laboratory (3.0 Units)**

This course is a 2 hour lecture and 1 hour laboratory. It is designed to be the first of the digital circuit series. Students will be taught the fundamentals of digital electronics, and it includes hands-on experience with digital logic elements and testing and measuring equipment. Laboratory experiments will accompany the class topics.

Prerequisite: CS360 or instructor consent

**EE 340 Materials Engineering (3.0 Units)**

This course covers atomic and crystal structures; imperfections; diffusion and relation between microstructure and electronic properties; the properties of engineering materials such as metals, polymers, ceramics and composites; phase equilibrium and transformations; mechanical, electrical, thermal, magnetic and optical properties; corrosion; and material degradation.

Prerequisite: Instructor's consent

**EE 400 Circuit Theory-I (3.0 Units)**

This course is the first of a 2-part series on the fundamentals of electrical circuits and E&M Laws. Topics include analysis of circuits containing resistors, capacitors, inductors, and controlled sources; Kirchhoff's Laws; simple resistive circuits; node-voltage method, mesh-current method; Thevenin's and Norton's theorems; operational amplifier and its applications; transient analysis of first and second order circuits, and SPICE simulation.

Prerequisite: instructor's consent

**EE 420 Circuit Theory-II (3.0 Units)**

This course is the second of a 2-part series on electrical circuits that covers advanced topics, including sinusoidal steady-state circuit analysis using phasors, power calculations in AC circuits, balanced three-phase circuits, Laplace transform and its application in transient circuit analysis, frequency select circuits and filters, Fourier series and Fourier transforms, and two-port networks.

Prerequisite: EE 400 or instructor's consent

**EE 431 Analog Circuit Design-I (3.0 Units)**

It is a course of two hours lecture and one hour laboratory. It is the first of a series on the analysis and design of analog circuits. Hands-on experimentation will accompany the course to demonstrate and verify the subjects covered and to assist understanding of the design techniques and theories. Topics include a review of circuit analysis techniques, operational amplifier applications, and device models (BJT and CMOS). Laboratory experience includes work on transistor amplifiers with feedback, discrete components, differential amplifier, op-amps and their applications, active filters and oscillator, regulated power supplies, class AB power amplifiers, and AM and FM communications.

Prerequisite: EE400 or instructor's consent

**EE 432 Analog Circuit Design-II (3.0 Units)**

This course provides students with the opportunity to use the knowledge and experience acquired in EE431 to further understand the design concepts of analog circuits and conduct analysis and design of differential amplifiers, current mirrors, frequency response of electronic circuits, feedback circuit analysis, output stages, integrated circuits, filters and oscillators.

Prerequisite: EE420

**EE 450A Logic Design (3.0 Units)**

This course is intended to provide the students the opportunity to use the knowledge and experience acquired in previous circuit courses to further understand the design aspect of digital integrated circuits and devices. Hands-on design experience is provided in digital and logic circuits and their applications. The course focuses on various logic design techniques to design a variety of combinatorial and sequential circuits. Timing considerations are analyzed for asynchronous and synchronous circuit designs with emphasis on state machine design approaches. Students will be introduced to modern design techniques using HDL languages and concentration on verification of circuit designs. Simulation tools include Alters MAX + plus II, and Xilinx. The course includes various digital circuit design projects

Prerequisite: EE206 or instructor's consent

**EE 460A System Analysis and Simulations (3.0 Units)**

This course is an introduction to the basic concepts and principles of signals and systems. Both analog and digital signal processing techniques will be covered. Topics include analog signals and systems, digital signals and systems, LTI systems, Fourier transform, Z-transform, FFT, system stability, digital filter design, and Networks. Matlab software will be used to implement some of the DSP algorithms.

Prerequisite: instructor's consent

**EE 468A Modern Software Techniques for Electrical Engineering****(3.0 Units)**

This course is designed to provide the MSEE students with a hands-on experience in Unix/ Linux environment and the necessary skills in C/C++ programming languages. This course will cover the essentials of the logic of a structured computer language, Unix/Linux shell programming and Hspice for circuit simulation. This course is taught with extensive hands-on projects. Prerequisite: EE450A or Instructor's consent

**EE 470A Digital Signal Processing (3.0 Units)**

This course is a study of the concepts in deterministic and statistical techniques for describing, analyzing, and characterizing generic signals and their applications. Topics include signal processing, continuous and discrete Fourier analysis, and fundamentals of DSP methods. Additional coverage includes the

fundamentals of the algorithms and computational methods for digital FIR/IIR filter design and basic signal analysis techniques. Simulation exercises using Matlab / C Language are required. Prerequisite: EE465A or instructor's consent

**EE 480A Digital Design and HDL (3.0 Units)**

This course develops the students' ability to design commonly used basic building blocks of modern digital systems and provides them with fundamental knowledge of the state-of-the-art design methodology, design considerations, and verification strategies for complicated digital hardware design. Topics include Verilog HDL basics, Logic modeling, state machine design and memory modeling using Verilog HDL. Additional topics on FPGAs architectures, device vendors, FPGA design tools, FPGA applications and latest trend in the programmable logic industry are also covered. Students can use Verilog tools such as Synopsys VCS, Mentor Modelsim, Cadence NC Verilog, and Silo III Verilog Simulator from SimuCAD for their homework and design projects. Students are encouraged to take the HDL based sequence of courses EE480A, EE511 and EE562 to gain knowledge and experience in semi-custom IC design using industry grade EDA design tools.

Prerequisite: EE450A or instructor's consent

**EE 494A Senior Design Project (Research and Laboratory Work) (3.0 Units)**

In this course, students are expected to develop their creativity through a design project under close supervision of a project advisor from the engineering faculty. The design project must be open-ended, whereas the design approach must employ modern design techniques and methodologies in the related fields.

This project must entail: formulation of a design problem statement including realistic constraints such as economic factors, safety, and reliability issues; design specifications; consideration of alternative solutions; manufacturing procedures; and operation instructions.

The research topic and proposal must be approved by the project advisor. The student must follow the project guidelines throughout the period of research, implementation, testing, report writing and related procedures and meet with the advisor regularly.

Prerequisite: Instructor's consent

**EE 524 Advanced Computer Organization and Structure (3.0 Units)**

This course is designed to further investigate modern computer design. Topics include an in-depth study of multiprocessor architecture and interconnection networks, pipeline, data flow, algorithm structures, memory system design, cache memory design, and a comparison of the performance and design among various computer architectures. Hands-on project experience is required. Prerequisite: Instructor's consent

**EE 525 Digital IC Design (3.0 Units)**

This is the first of the VLSI design series. The course begins with an introduction to state-of-the-art CMOS VLSI engineering with emphasis on the basic CMOS VLSI design principles and methodologies. Topics include basic MOSFET theories and characteristics, CMOS semiconductor fabrication processes, sub-micron design rules, combinatorial and sequential CMOS logic gate design styles, data path, interconnection, power and clock distribution, array and memory design. Widely used industry standard tools, such as Cadence's Opus, Composer, Virtuoso, Avant's HSPICE and Mentor's Calibre will be used for all homework assignments and design projects.

Prerequisite: Instructor's Consent or EE450A

**EE 536 Advanced Digital IC Design (3.0 Units)**

Second in the VLSI design series, this course is a continuation of the course EE525 and is designed to enhance students' ability to design a Standard Cell Library, Data path and other special circuits that can be used as intellectual properties (IP) building blocks for ASIC, SOC (system on chip) and DSP (digital signal processing) applications. In addition to the design subject, students also learn how to generate different

views of the circuits to facilitate system integration with various CAD tools for logic synthesis and physical implementations. Topics include standard cell design and characterization, technology mapping, design rules, layout, data path synthesis, memory compiler, IP development and architecture trade-off. Modern CAD tools such as Synopsys, OPUS, Composer, Virtuoso, HSPICE and Mentor's Calibre will be introduced and used for homework assignment and projects.

Prerequisite: EE525 or instructor's consent

### **EE 538 Advanced FPGA Design and Implementations (3.0 Units)**

Digital design using FPGAs is a very important activity in industries due to reduced cost, compared with ASIC design, and faster time-to-market. In order to design a digital system using FPGA, the designers must understand architectures of the FPGA as well the accompanying CAD tools. The course will cover two major Xilinx FPGA architectures in detail. The student will learn to build various digital blocks such as combinational logic, sequential logic, finite state machines, RAM and DSPs by studying the architectures of the FPGAs.

Prerequisite: EE536 or instructor's consent

### **EE 547 Advanced Analog IC Design (3.0 Units)**

This course is designed to enhance students' ability to design analog integrated circuits. Topics include review of op-amp networks, frequency response to linear integrated circuits, level sensing amplifiers, phase detectors, voltage controlled oscillators, charge pumping techniques, and A/D, D/A converters, HSPICE, are used for assigned homework and projects.

Prerequisite: EE536 or instructor's consent

### **EE 558 VLSI Physical Design-Place and Route (3.0 Units)**

This course is the third in the VLSI Design series and it introduces ASIC place and route. The course introduces the students to state-of-the-art physical design automation tools and techniques. Topics include design flow, library review, tool graphical interface, floor planning, power planning, timing driven placement, static time analysis (STA), CT-Gen, special routing, final routing, and engineering change order (ECO), and run batch mode jobs. Hands-on exercises and projects are required. Prerequisite: EE525 and EE536 or Instructor's Consent

### **EE 562 Application Specific Integrated Circuit Design (3.0Units)**

This course is designed for students who intend to become logic designers using HDL based design methodologies. Topics include ASIC/CPLD/FPGA Library modeling, Cell characterization, static timing analysis, place and route algorithms design for testability, fault modeling, industry standard formats for design information interchange, and a survey of the most popular EDA tools. Industry grade design tools such as Synopsys Design Compiler, Cadence Verilog-XL, Synopsys Design Time (under dc\_shell), Synopsys Prime Time, Cadence Silicon Ensemble, Mentor Calibre LVS/DRC, and Synplicity Synplify are used for homework assignments and projects

Prerequisite: EE 536 or instructor's consent

### **EE 565 High-Speed Digital System Design (3.0 Units)**

This course offers the concepts of advanced technology in high-speed digital system design. It focuses on the issue of signal integrity which is the most critical factor in such system design. Topics include an overview of digital system engineering, modeling and analysis of interconnections, circuit analysis, power distribution in high-speed systems, noise in high-speed digital systems, Buffering model, digital timing analysis, and design methodologies.

Prerequisite: EE420 or instructor's consent

### **EE 576 Power/Signal Integrity in Advanced IC Packaging and PCB Design (3.0 Units)**

This course is an extension of the subjects covered in EE565. It covers the concepts of advanced Technology in high speed digital system design with emphasis on the applications of advanced PCB and high speed packaging design. The course objective is to develop the students' abilities to work on high speed PCB and packaging design.

Prerequisite: EE 565 or instructor's consent

**EE 581 Data Compression (3.0 Units)**

This course surveys current image, data and voice compression standards and studies key components in image, data and voice compression. The course emphasizes minimum redundancy coding, Huffman coding, arithmetic coding, statistical modeling, dictionary-based compression, sliding window compression, LZ78 compression, speech compression, lossy graphics compression, JPEG, wavelet methods, and archiving packages. Matlab programming will also be introduced. Prerequisite: EE470A or instructor's consent

**EE 585 Image Processing and Applications (3.0 Units)**

This course offers the fundamentals of image processing. Besides introducing basic concepts and principles, the course takes a practical approach to emphasize various applications of digital image processing. Topics include image fundamentals, image transformations, image enhancement image restoration, information technology, data compression, image segmentation, image presentation and pattern recognition and interpretation. Matlab software is employed for implementing numerous algorithms.

Prerequisite: EE581 or instructor's consent

**EE 590 Special Topics (3.0 Units)**

Special topics courses are offered to student in electrical engineering program by current faculty members or invited guest speakers to expose the students to emerging technologies related to their field of studies. These courses are conducted the same way as regular courses.

Prerequisite: instructor's consent

**EE 607 Master's Project (3.0 Units)**

The project is intended to integrate the knowledge and hands-on experience that the student has acquired from the basic, core, and elective coursework required for the program. Students work on a practical project under the guidance of the instructor. The instructor determines the project goal and scope based on the electrical engineering curriculum and technology trends. The instructor also guides the student to develop plan and implementation methodology. Upon completion of the project, the student is required to conduct an open-forum presentation of the project. It is suggested that students should take this project course near the end of their program of study.

Prerequisite: EE538 or instructor's consent

**EE 608 System on Chip (SOC) Design (3 units)**

This course introduces the fundamentals of System-on-Chip (SOC) design. SOC is composed of many functional modules such as processor, memory, digital IPs, analog/mixed signal modules, RF, and interfaces on a single chip. This course will focus on ARM based on-chip bus platform, digital IP verification, and the trend and integration of SOC.

Prerequisite: EE524 or instructor's consent

**EE 630 Design Verification - SOC (3 units)**

This course covers the design verification methodologies commonly used in system-on-chip (SOC) design. Topics include design verification basics, introduction of various verification strategies, verification of soft and hard IP blocks, verification for networking/communication ASIC, verification for audio/video signal processing ASIC, how to build an efficient and effective verification platform, automation of verification flow, test case coverage, how to create design models using PLI routine, and formal verification, etc.

Prerequisite: EE524 or instructor's consent

**EE 624 Advanced VLSI Physical Design-Physical Synthesis and Low Power Design (3.0 units)**

This course is designed to further investigate ASIC front-to-back design automation. The course aims to develop the students' design ability in ASIC by using state-of-the-art EDA backend design tools and methodology (such as Cadence SE-PKS). It also introduces concepts in advanced industrial deep submicro backend design. Topics include library review, floor planning in SE, physical synthesis, CTPKS, timing closure, RCextraction, back annotated from back to front, non-default routing rule implementation, double-cut-via implementation for 0.13u and below technology, shielding, and route. Hands-on exercises are required. Prerequisite: EE558 or instructor's consent

**EE 691 Magnetoresistive Random Access Memory (3.0 Units)**

This course is intended for advanced graduate students of electrical engineering. In this course the specific example of a leading candidate for next generation non volatile memory MRAM storage cell devices is analyzed in depth. Topics include multilayer Magnetic nanostructures, exchange bias, ferromagnetic and anti ferromagnetic materials, magnetic domains, magnetic thin films, ultra fast manipulation of magnetization in the multilayer magnetic nanostructure by spin polarized electron currents and magnetic circular dichroism techniques.

Prerequisite: instructor's consent.

**English****ENGL101 Expository Writing (3.0 Units)**

This course focuses on basic concerns in writing, going from its processes to its forms, to the popular techniques writers have used to make their works outstanding. Students will learn to use grammar and punctuations correctly and to write effective essays in both academic and professional settings. It is a course of basic level of college writing and let students acquire knowledge and skills in written communication.

Prerequisite: instructor's consent

**ENGL 102 Critical Thinking (3.0 Units)**

Student will learn to understand the intent of a message, to justify the soundness of a statement, and to evaluate the validity of the evidence. Rigorous training will help learners go beyond feelings and personal biases to clear, impartial, and accurate problem solving and decision making that are essential to all human communication: speaking, writing, debating, and persuading.

Prerequisite: ENGL101 or instructor's consent

**ENGL 110 Public Speaking (3.0 Units)**

The course is intended to teach student the skills in public speaking, formal presentations, and listening. Students will learn about nonverbal communication, cultural differences in communication, and research methodology.

Prerequisite: Placement by exam or successful completion of advanced ESL classes or instructor's consent

**ENGL 310 Academic Reading (3.0 Units)**

This course seeks to build student's reading skills in a systematic and comprehensive way. Students will be trained to capture an essay's or a book's thesis, follows its development, and recognizes its arguments. Being equipped with advanced reading methods, and through exposure to materials from a wide range of subject areas, students will be trained to elicit key information from professionally written non-fiction material.

Prerequisite: Placement by exam or successful completion of advanced ESL classes or instructor's consent

**ENGL 351 Academic Writing (3.0 Units)**

This course helps students to understand what they read, observe, or create, by writing clear, effective, and powerful prose in essays, reports, white papers, analytical studies, and other documents and presentations. It focuses on subjects of cultural character that include language, literature, philosophy, history, science, and other fundamental humanities subjects of different breadth and contents.

Prerequisite: ENGL101 or instructor's consent

**ENGL 421 Intercultural Communication (3.0 Units)**

Intercultural communication and relationship are the foci of this course. Students are guided to communicate effectively in a diversified community.

Prerequisite: ENGL 101 or ENGL 110 or instructor's consent

**ENGL 431 Team Communication (3.0 Units)**

This course is all about teamwork and intra-group communication. By extensive practice, students hone their communication skills via team rehearsals, and by working on group projects. An important focus of the course is teaching students how to adapt in a team environment when a decision is to be made and a problem needs be solved.

Prerequisite: ENGL 101 or ENGL 110 or instructor's consent

**Finance****FIN 410 Fundamentals of Finance (4.0 Units)**

Students taking this course are introduced to the world of finance. Financial management is a technique used by corporate managers to raise and allocate capital in a manner that will maximize revenue, profits, and stabilize the firm's future cash flows. This course examines the concepts and techniques available to financial managers as they address various aspects of financing and investments. Topics include financial background, financial statements, review of accounting; and taxes; cash flows and financial analyses, time value of money, financial system, interest and interest rates, characteristics of bonds, valuation and characteristics of stocks, capital budgeting, risk and return, and international finance. A case study is required. SAP Business One and/or its open source equivalent may be introduced.

Prerequisite: Instructor's Consent

**FIN 520 Financial Management (3.0 Units)**

This class teaches students to apply the essentials of financial accounting to the practice of management. Topics include the definition, behavior, concepts, and estimation of cost, and application of cost accounting processes in manufacturing and service organizations. the principles of planning and control for cost-related management, cash flow statements, capital budgeting, and how to analyze financial statements.

Prerequisite: FIN410 or Instructor's Consent

**FIN 530 Investments (3.0 Units)**

This course will cover the basis of investment and how to manage it. Students will be taught about theory and empirical evidence, related to market efficiency, portfolio theory, assess pricing models, factor models, and option pricing theory. Students are taught to combine market research results and electronic information sources to create investment strategies.

Prerequisite: FIN 520

**Law****LAW 420 Introduction to Business Law (3.0 Units)**

This course introduces a general system of the U.S. business law. The course will address various potential legal issues during the operation of businesses. The course explains when and how to consult an attorney before taking legal action. The course provides an overview of the U.S. legal system, its fundamental structures, regulation and processes. We will focus on the performance of agencies, and will give a general introduction to contract law..

Prerequisite: Instructor's Consent

**LAW 510 Introduction to Intellectual Property Law (3.0 Units)**

This survey course covers the basic statutes and doctrines undergirding the three major federal forms of intellectual property law: trademarks, copyrights, and patents. It also touches upon state law doctrines such as right of publicity, trade secrets, state trademark law, and misappropriation and other forms of unfair competition. Relying on a combination of cases and problems, students will develop familiarity with the foundational principles of intellectual property law and practice.

Prerequisite: Instructor's Consent



**LAW 512 International Trade and Contract (3.0 Units)**

This course covers the basic doctrine of international trade and provides an overview of WTO regulations governing it. Topics covered include comparative advantage and related corporate strategies, the impacts of emerging regional economic blocks, the institutions of the multilateral trading system, and trade barriers. Students will learn the mechanics of international payment, shipping, and distribution. This course also focuses on a new generation of model contracts. Student will be taught to find the model contracts and learn how to use them. Through this course, students develop necessary know-how to help companies deal with the legal aspects of doing business internationally.

Prerequisite: LAW420 or Instructor's Consent

**LAW 571 Modern Law of Corporation (3.0 Units)**

Legal issues in promoting, formation, operation, and dissolution of corporations, partnerships, and sole proprietorships will be illustrated in this course.

Prerequisite: Instructor's Consent

**MBA****MBA 608 Master's Project (3.0 Units)**

This course is designed to develop student's research abilities. The student or project group will conduct the project under the close supervision of a project advisor. The research and development approach must employ up-to-date information and methodologies. Students are required to: 1.) Make decisions on the subject and formulation of the objective, 2.) Plan the research and development procedures and practical approach, 3.) Set a time table and operation instructions, and generate a proposal, 4.) Carry out their plan 5.) Write a report regarding the results at the end. The project topic and proposal must be approved by the project advisor. The format of the report must be in accordance with CASBU's Project Style Guide and be approved by the advisor and a technical editor

Prerequisite: Advisor's approval

**MBA 610 Case and independent study (3.0 Units)**

Independent studies are tailored to the student's special interest in business administration under the direction of an instructor who is knowledgeable in the field. It may consist of reading, homework, tests, and projects or presentations as determined the instructor.

**Management****MGT 320 Principles of Management (4.0 Units)**

Students taking this course learn the foundations and basic skills of management. Specifically, students learn organizational structure and environment, and develop skills in setting objectives in planning, leading, organizing, decision-making, controlling and motivating, communication and negotiating, and managing information for decision making. SAP Business One may be introduced as demo software.

Prerequisite: instructor's Consent

**MGT 461A Organizational Behavior and Management (3.0 Units)**

Students taking this course explore the complex dimensions of organizational behavior including examination of experiential and conceptual approaches to communication, self-awareness, motivation, perception and problem solving. Students explore interpersonal and intrapersonal aspects to learn about the management of change, theories in leadership and organizational issues. Students are also required to participate in case study projects.

Prerequisite: MGT 320 or Instructor's Consent

**MGT 491A Entrepreneurship and Venture Business (3.0 Units)**

This course teaches students the full range of the entrepreneurial processes, including the evaluation, development, and creation of a successful business strategies. It will help the potential entrepreneurs and professionals visualize and experience entrepreneurial approaches to business, product, and marketshare development.. The course explores the entrepreneurial approach to resources such as the development of an organizational structure, financing entrepreneurial ventures, market analysis, and screening venture opportunities. Individuals will experiment and evaluate what it takes to be an entrepreneur including developing the plan for a new business.

Prerequisite: Senior standing and MGT 461A or Instructor's Consent

**MGT 511 Human Resources Management (3.0 Units)**

This course provides students and practicing managers with a comprehensive overview of essential personnel management concepts and techniques. The focus is on essential topics such as job analysis, candidate screening, interviewing, testing, hiring, evaluating, training, motivating, promoting, compensating and the associated legal constraints. Additional topics covered include global HR, diversity awareness and training, and sexual harassment policy legal requirements. Practical applications such as how to appraise performance and benefits and handle grievances are explored. Additionally, developing independent work teams that foster creativity and innovation will be discussed Prerequisite: MGT461A or Instructor's Consent

**MGT 516 Production and Operations Management (3.0 Units)**

This course is designed to teach students basic theories about production and operations management. Emphases will be on planning, organizing, controlling, and balancing quantitative aspects and behavioral applications in production/operations management; operations strategy is used as a guide for topical integration. Students learn about basic management processes, resource conversions, and behavioral applications within production/operations. Specific topics include operations management, operations strategies for competitive advantage, forecasting in operations, facility and layout planning, product and process design choices, scheduling, inventory control and quality control. SAP Business One and/or its Open Source equivalent may be used for hands-on learning.

Prerequisite: Senior standing or Instructor's Consent

**MGT 520 Project and Risk Management (3.0 Units)**

This course is designed for students who are interested in pursuing the project management area of study. Students are introduced to the principles of project and program management, followed by the roles of project management, matrix organization and project management techniques, leading students to the efficiently execute and complete projects. Students also learn how to identify and analyze project risks, and how to reduce or eliminate risk-related factors. Methods for ongoing risk assessment and project performance evaluation are included. SAP Business One may be utilized for hands-on experience.

Prerequisite: MGT 461A or Instructor's Consent

**MGT 525 Supply Chain Management for E-Business (3.0 Units)**

Students taking this course learn to apply evolving methods in integrating the process of product distribution and supply chain management using electronic business skills. This course teaches students specific methods that will allow them to profitably and efficiently fulfill customer demands through the Internet.

Prerequisite: MGT516

**MGT 540 Managing for Quality Improvement (3.0 Units)**

This course introduces the principles of quality management to students in the context of organizational and cultural change dedicated to the continuous improvement of products and services. The course will focus on quality control and quality assurance in project execution and ongoing operations environment. Students learn about quality planning and quality management through hands on practice, including quality plan development and execution, quality management processes and implementation. Many quality management techniques and methodologies are introduced during the course such as statistical quality control, six sigma, and ISO 9000 and other quality standards. Prerequisite: MGT461A or Instructor's Consent

**MGT 550 International Business Management (3.0 Units)**

This class teaches students to review the classic five functions of management: planning, organizing, staffing, leading, and controlling. Students compare managerial practices of many countries. The class also covers the importance of quality and continuous improvement for gaining a competitive edge. Students learn practical aspects of management from case studies, the strategic considerations for management in the international environment, and the roles of the latest information technologies, including computer networks, decision support systems, telecommuting, and CAD, CAM, CAE.

Prerequisite: Advanced graduate standing or Instructor's Consent

**MGT 552 Technology Product Management and Marketing (3.0 Units)**

This course is designed to give students practical experience in product development, and focuses on the management of engineering and technology activities. Topics include technology product design, planning, production, marketing, sales, and maintenance; technological product life cycle from research and development through new product introduction, marketing requirement documentation (MRD), product positioning, channel inventory management, outbound communications, and the organizational role of the product marketing manager. Case study and project presentations are required. Prerequisite: Advanced graduate standing or instructor's consent.

**MGT 554 Global Outsourcing Project Management (3.0 Units)**

Global outsourcing management is becoming one of the most important new management fields in the highly competitive global economy. In this course the students learn the important issues related to global outsourcing management as well as the actual implementation mechanism for a successful global outsourcing management business. Throughout the course, cross-cultural and cross-border considerations and diversity management skills are heavily emphasized. Case studies will be conducted on successful and failed global outsourcing projects or businesses.

Prerequisite: Advanced graduate standing or instructor's consent.

**MGT 611 Strategic Management (3.0 Units)**

This is an advanced-level case study course that integrates the technical skills and concepts of accounting, finance, marketing management, statistics, and computer applications.. The course first covers the concepts and techniques of strategic management, followed by case studies. Topics cover an overview of the strategic management process, the three strategy-making tasks, industry and competitive analyses, evaluating company resources and competitive capabilities, strategy and competitive advantages, matching strategy to a company's situation, evaluating the strategies of diversified companies, implementing strategy, and case studies.

Prerequisites: Advanced graduate standing or instructor's consent.

**MGT 613 Manpower Planning (3.0 Units)**

This course begins with the discussion of the need for manpower planning and gives samples of plans developed for various types of organizations such as manufacturing, high-tech, small business, etc. Students have an opportunity to learn about and develop a manpower plan which is part of the Business Plan and also an ongoing dynamic document developed as a part of the Strategic Planning component of the organization. It also covers scheduling, rosters and succession planning which is a process of identifying a long-term plan for the orderly replacement of key employees. The course also explores cases of developing a manpower plan including developing a Gap Analysis to determine manpower needs and budgeting for the manpower needs. Developing new HR manpower configurations such as self-managed teams, telecommuting, outsourcing, temps-to-hire and other methods to make companies more flexible, the course offers economical solutions to the high cost of knowledge workers. The course includes case studies and writing of several manpower plans for representative organizations. Prerequisite: MGT 511

## **Marketing**

### **MKT 320 Principles of Marketing (3.0 Units)**

This course introduces the major principles of marketing, marketing's role within the company and in the global economy. Studies focus on the marketing principles of market segmentation, targeting, product mix, pricing strategies, developing the distribution channels, and marketing communications. An important component to this course is how to make marketing decisions in highly competitive markets, as well as using the impact of social marketing media. .

### **MKT 460A Marketing Management (3.0 Units)**

This course studies marketing management by analyzing real-world cases. Students learn to implement and execute the marketing process through situation assessment, strategy formulation, marketing planning, marketing implementation and evaluation. This course emphasizes the use of strategic decision making in marketing, as well as how to use marketing to drive the value of the corporation. Prerequisite: MKT320 or instructor's approval

### **MKT 514 Marketing Healthcare (3.0 Units)**

This course introduces students to the marketing strategies and tactics that provide competitive opportunities for healthcare organizations. The course focuses on the marketing elements of price, place, product and promotion, concepts that are the basis of constructing and implementing a marketing strategy. Other topics include market research, product strategy, new technology and MD's, branding, multi-cultural marketing and promotional decisions, including crisis communications. The class work includes cases, theory and an independent project.

Prerequisite: Advanced graduate standing or Instructor's Consent.

### **MKT 550 E-Commerce Marketing (3.0 Units)**

This course instructs students on how to facilitate a rewarding e-commerce solution and gives students an overview about the e-commerce market operation. The course requires student to adapt the principles and rules of marketing to an e-commerce market and learn how to consistently secure e-marketing objectives.

Prerequisite: MKT320 or instructor's approval

### **MKT 551 Strategies Marketing (3.0 Units)**

This course teaches students fundamental concepts and practices in marketing research and data analysis, and the use of data and financial analysis to set strategic positioning strategies. Students learn to use the primary source (such as surveys) as well as secondary sources (Internet, publications, etc.) in research techniques and engage to their own marketing research projects. Emphasis is on developing practical marketing research skills and basic analysis mechanisms leading to strategic marketing. Statistical and other quantitative analysis techniques are the main focus of this course. The course also supports an overview of quantitative and qualitative tools for strategic marketing, market segmentation process, strategic positioning, and channel marketing issues. Case studies and marketing requirements reports are required.

Prerequisite: MKT460A or instructor's approval

### **MKT 552 International Marketing (3.0 Units)**

This course considers how culture and environment of different countries affect marketing strategy, how to perform a comprehensive analysis of a country to support marketing plan formulation, the strategic implications of different market groups around the world, and special insights into international marketing from a study of special cases.

Prerequisite: MKT460A or instructor's consent.

### **MKT 555 International Trade and Operations (3.0 Units)**

The course is designed to develop the knowledge and understanding of the global marketing environment and of the concepts, tools, and theory that will prepare the students to take the responsibility for successful global market penetration for his/her business organization. The perspective of the course is managerial, i.e., the ability to identify opportunities, resolve problems, and implement solutions and programs.

Prerequisite: Graduate standing or instructor's consent.

## **MSBM**

### **MSBM 480A Biochemistry (3.0 Units)**

A course in biochemistry with emphasis on the structure and function of macromolecules. Topics covered will include protein and nucleic acid structure, enzymologist, selected aspects of intermediary metabolism, membrane structure, bioenergetics and control mechanisms. The course emphasizes understanding of principles and concepts that have broad application throughout the area of life sciences.

### **MSBM 500 Protein Engineering (3.0 Units)**

This is design and engineering of optimized bimolecular emphasizing proteins, combinatorial methodologies, protein structure and function, and biophysical analyses of modified bio-molecules. Clinically relevant examples from the literature and industry. Prerequisite: basic biochemistry.

### **MSBM 501 Molecular Biology (3.0 Units)**

This course provides a comprehensive overview of the key concepts in molecular biology. Topics to be covered include nucleic acid structure and function, DNA replication, transcription, translation, chromosome structure and remodeling and regulation of gene expression in prokaryotes and eukaryotes. Extended topics to be covered include methods in recombinant DNA technology, microarrays, and microRNA.

Prerequisite: Instructor's consent

### **MSBM 502 Biotechnology I—Genetic Engineering (3.0 Units).**

Principles of molecular biology, recombinant DNA technology, transgenic organisms, AND cloning vectors.

Prerequisite: Instructor's consent

### **MSBM 512 Biotechnology II—Protein Structure & Function (3.0 Units)**

Prerequisite: MSBM 487 Basics of protein structure from amino acid composition to tertiary structure and oligomerization. Topics include: protein folds & molecular modeling, protein ensembles and dynamics, the boltzmann equation, the unfolded state, protein folding and molecular origins of protein stability, catalysis, transition state theory, binding, organic and enzymatic reaction mechanisms, co-factors and redox reactions, steady state and pre-steady state enzyme kinetics, phylogenetics, protein relatedness, evolution of protein structure, mutation, adaptation, and structure-function relationships.

Prerequisite: MSBM 512 or instructor's consent

### **MSBM 520 Advanced Cell Biology (3.0 Units)**

This course covers cell organization and subcellular structure. Students examine the evolution of the cell, chromosome and plasma membrane structures and behaviors, mechanics of cell division, sites of macromolecular synthesis and processing, transport across cell membranes, cell dynamics, organelle biogenesis, and cell specialization. Students also are introduced to the experimental techniques used in cell biology to study cell growth, manipulation, and evaluation.

Prerequisite: MSBM 480A or instructor's consent

### **MSBM 590 Introduction to Bioengineering Research (3.0 Units)**

Bioengineering is an interdisciplinary field that leverages the disciplines of biology, medicine, and engineering to understand living systems, and engineer biological systems and improve engineering designs and human and environmental health. Topics include: imaging; molecular, cell, and tissue engineering; biomechanics; biomedical computation; biochemical engineering; biosensors; and medical devices.

Prerequisite: Instructor's consent

### **MSBM 503 Business of Biotechnology: Fundamentals (3.0 Units)**

The Business of Biotechnology: Fundamentals is designed to give the Masters in Biotechnology student an understanding of the basic business principles and the workings of the primary functional areas of

businesses. A basic assumption is that the student has had no formal business education and has not worked in a business management position. The main objective of this course is to prepare the student for the two following courses in The Business of Biotechnology.

Prerequisite: Instructor's Consent

#### **MSBM504 Biotechnology Operations (3.0 Units)**

This course is designed to provide students with an understanding of how a biotechnology company must operate to be successful and to develop a product for a targeted market. Students will learn about the specialties of nonclinical and clinical development, regulatory affairs, quality assurance, manufacturing, quality control, and program management, as well as their interdependency in support of a specific marketing plan. Students will learn how each of these disciplines are coordinated and synchronized and will develop an appreciation of how the successful biotechnology firm becomes effective and efficient in operations. Students will participate in practical exercises, which include developing products to fill the corporate pipeline, adding value to their products, and generating revenue for their model firms.

Prerequisite: Instructor's Consent

#### **MSBM 505 Advanced Biotechnology: Global Perspectives (3.0 Units)**

This course is designed as a capstone experience in which students will integrate and apply knowledge and skills gained in M.S. in Biotechnology Program to achieve a new level of synthesis and depth of understanding about an important problem in biotechnology today.

Prerequisite: MSBM 503 or Instructor's Consent

#### **MSBM 506 Principles and Practice of Biotechnology (3.0 Units)**

Principles and Practices of Biotechnology (P&P) is a survey course that will serve as a foundation for further studies in the Master of Science in Biotechnology program. Students will develop a broad understanding of the scientific, political, and legal issues that have driven the development of the biotechnology industry. They will also develop an understanding of how these drivers interact with business and finance to influence the formation and growth of biotechnology companies. Students will be introduced to the ethical issues that help shape public policy regarding both agricultural and medical applications of biotechnology.

#### **MSBM 510 Business of Biotechnology: Contemporary Challenges and Application (3.0 Units)**

The course will focus on important business and managerial issues facing individuals in the biotechnology industries. One of the biggest challenges facing managers and executives in the biotechnology area is to constantly remain creative and innovative. The first session will present concepts and develop skills to encourage "thinking outside the box." While creativity and innovation are two significant proficiencies required in today's dynamic biotech environment, the course also recognizes the importance of many other functional needs related to identifying, obtaining, and organizing/managing resources in building and sustaining a successful organization. Specifically, the CCA series will present the challenges related to specific functional areas in an organization – namely, product development, marketing, finance and accounting, management and leadership.

Prerequisite: MSBM 503 or Instructor's Consent

#### **MSBM513 Business of Biotechnology: Frontiers and Strategies (3.0 Units)**

The course will focus on introducing business strategy, a variety of types of business strategy, and issues that affect the analysis, development, and application of strategy in today's competitive environment. The course will use a variety of delivery tools including in-class lecture, case analysis, problems, "role plays", readings, etc. Assignments will be assigned on a bi-weekly basis and described in greater detail later in this guide. Typically, participants will be required to read several articles before a session, post input to specific questions related to the session, and prepare several case analyses to the session topics.

Prerequisite: MSBM 503 or Instructor's Consent

#### **MSBM 514 Biotechnology Law and Society (3.0 Units)**

The course will include a combination of lectures, guest speakers, case studies, and in-class exercises.

Students are expected to read assigned materials prior to class and prepare discussion questions on individual materials and readings as a whole. Additionally, comments, questions and discussion will be posted by students and faculty in the interim times between sessions. These are expected to be more than questions for clarification.

Assignments will ask students to react to specific cases or questions utilizing assigned readings, in-class discussions and as appropriate, students' own work experience. Students are encouraged to cross-link material from other courses in the Program with this course. Likewise, discussions of challenges, conflicts arising from differing perspectives, opportunities for problem solving, creative thinking and good biotechnology management are encouraged.

Prerequisite: Instructor's Consent

### **MSBM 521 Immunology & Pathobiology (3.0 Units)**

Advanced coverage of topics to include: molecular basis of generation of diversity, antigen recognition, cytokines and chemokines biology, xeno transplantation, vaccination, evolution of immune system, allergies and therapeutics, gene therapy, immunodeficiency. Introduction of Pathobiology that will cover an array of diseases in a systematic fashion. Mechanism of disease will be presented along with basic concepts of pathobiology.

This course will prepare students for future professional careers in biotechnology related fields, including Biomedical Research, Forensics Research, Pharmacology, Genetic Engineering, Recombinant DNA Technology, as well as other biomedical fields.

Prerequisite: MSBM 520 or Instructor's Consent

### **MSBM 571 Techniques in Biotechnology I (3.0 Units)**

The first in a two semester laboratory series, this course includes a broad scope of protein, RNA and DNA protocols providing experience in the manipulation of macromolecules and transformation of microbes.

Emphasis is on building the skills and intellectual framework necessary to work in the biotechnology field.

Prerequisite: Instructor's consents

### **MSBM 572 Techniques in Biotechnology II (3.0 Units)**

This is the second course in a two semester laboratory series. This course includes numerous organism-specific techniques of culture, propagation, maintenance and study. These exercises provide training in bioinformatics, plant and animal genetic engineering, bioreactors and fermentation, research microscopy and cytogenetics, aquaculture, immunology and molecular diagnostics. Prerequisite: MSBM 571 or Instructor's consents

### **MSBM 591 Seminar I (1.0 Units)**

Department faculty give research presentations. Students read scientific papers related to the faculty research (literature review due at beginning of faculty research presentation). Students master critical reading of scientific papers.

Prerequisite: Instructor's consents

### **MSBM 592 Seminar II (1.0 Units)**

Thesis draft preparation. Instruction in writing, organization, and presentation of master's thesis.

Presentation of research to junior seminar class.

Prerequisite: Instructor's consents

### **MSBM 600 Thesis Proposal (5.0 Units)**

Students wishing to complete a thesis may do so by embarking on a two semester thesis project, which includes MSBM 600 Thesis Proposal and MSBM 602 Master Thesis. This project must be a hypothesis-based original research study. The student must complete MSBM 592 and fulfill the requirements of that course, including submission of project proposal, final paper and poster presentation, before enrolling in the subsequent thesis course.

Prerequisite: Instructor's consents

### **MSBM 600 Master Thesis (5.0 Units)**

For the thesis course, students are required to submit a revised proposal (an update of the MSBM 600

Thesis proposal) for review and approval by the faculty advisor and biotechnology program committee one month prior to the beginning of the term. Students must meet the faculty advisor periodically for discussion of the project's progress. Graduation with a thesis is subject to approval by the thesis committee and program committee, and requires the student to present their project to a faculty committee both orally and in writing.

Prerequisite: Instructor's consents

## **Green Technology**

### **MSGT 501 Introduction to Solar Energy Technologies (3.0 Units)**

This course covers the advancement, capacity growth, and use of renewable energy sources. Modern interest in renewable energy development is linked to concerns about exhaustion of fossil fuels and environmental, social and political risks of extensive use of fossil fuels and nuclear energy. It is a form of energy development with a focus on renewable energy.

Prerequisite: Graduate standing or instructor's consent.

### **MSGT 502 Principles of Electric Circuits and Electrical Power System (3.0 Units)**

The course covers electric circuits design methods, electrical laws, network simulation, linearization around operating point. Emphasis in subjects of alternating current, balancing network, digital circuit, circuit theory, impedance, load, mathematical methods in electronics network analysis, schematics, series and parallel circuits, as well as power transmission grid system.

Prerequisite: Graduate standing or instructor's consent.

### **MSGT 503 Physics of Solar Cells (3.0 Units)**

Main topics in this course include interaction of light with matter, energy bands in solids, doping in silicon, the p-n junction, photo excitation at p-n junction, illuminated p-n junction, the energy source, the efficiency limit, PV fundamental, and Si solar cell fabrication.

Prerequisite: Graduate standing or instructor's consent.

### **MSGT 504 Photovoltaic Technology Development, Measurement & Characterization (3.0 Units)**

The course covers electronic materials and devices, cell and module measurements technologies, tools and analytical microscopy, electro-optical characterization and surface analysis. Crystalline silicon research, high-performance PV, and thin film PV technologies.

Prerequisite: Graduate standing or instructor's consent.

### **MSGT 505 Solar Power System: Design, Analysis & Installation (3.0 Units)**

This course covers island or standalone system, hybrid system, grid-connected & grid-tied system, grid connected inverters, connection to a DC grid, small-scale PV solar systems, small scale DIY solar systems, mounting systems, trackers, system performance and optimization, as well as standardization.

Prerequisite: Graduate standing or instructor's consent.

### **MSGT 506 Photovoltaic Manufacturing & R&D (3.0 Units)**

The course covers current manufacturing procedures, deposition plant for the production of solar cells, substrate washing, back reflector processing, amorphous silicon alloy deposition, transparent conductor deposition, module assembly plant, and potential improvements in manufacturing processes, multiple-band-gap, multiple-junction technology for stable high efficiency solar cells, microwave plasma assisted CVD technology for high rate deposition of amorphous silicon, optical enhancement, high quality doped layers, high quality intrinsic layers, device design, device current matching, as well as technical approach and time/cost estimates.

Prerequisite: Graduate standing or instructor's consent.

### **MSGT 601 High-Performance Photovoltaic (3.0 Units)**



This course focuses on technologies such as thin-film multi-junction cells, multi-junction concentrators, future-generation and novel high-efficiency concepts, amorphous silicon, cadmium telluride, and copper indium diselenide. The course also includes emerging concepts, such as quantum dots, and other promising breakthroughs in PV efficiency and affordability which aim to double the sunlight-to-electricity conversion efficiency of PV devices while dramatically cutting the cost of solar energy. Prerequisite: Graduate standing or instructor's consent.

**MSGT 602 Thin Film Photovoltaics (3.0 Units)**

Thin-film technologies covered in this course are high precision thin film deposition on large substrates, thin-film deposition in Chemical Bath Deposition method, physical vapor deposition (PVD), thermal evaporation, electron beam deposition, cathodic arc deposition, chemical vapor deposition, spin coating, and metallo-organic chemical vapor deposition.

Prerequisite: Graduate standing or instructor's consent.

**MSGT 603 Solar Thermal Technologies (3.0 Units)**

This course covers topics in solar thermal technologies, such as parabolic troughs technology, power towers, dish/engine systems, hybrid solar lighting, solar water heaters, solar thermal power cost and development issues.

Prerequisite: Graduate standing or instructor's consent.

**MSGT 604 Solar Cell Electronic Materials & Devices (3.0 Units)**

This course covers semiconductor materials, device properties, fabrication processes to improve the efficiency, stability, and cost of photovoltaic solar energy conversion. Materials covered include silicon (single x-tal and thin film), cadmium telluride, gallium arsenide, and heterojunction super lattices. Deposition technologies covered include, MBE, CVD, PVD, and MOCVD among others.

Prerequisite: Graduate standing or instructor's consent.

**MSGT 605 Energy Economics, Management & Policy (3.0 Units)**

This course covers the following topics: Energy, Energy and the Environment, Energy Demand, Energy Trading and Price Formation, Energy Taxation, The Oil Market and Business, OPEC, Oil Supplies and Prices, The Electricity Markets and Business, The Company Structure and Analysis, Environmental Economics, Restructuring of Energy Industries, and Energy - Economic Modeling and policy Analysis.

Prerequisite: Graduate standing or instructor's consent.

**MSGT 610 Master Thesis**

The master's thesis is an original scholarly work by student as an opportunity for student to get involved in the design and construction of experiment together with laboratory tests. Upon completing the thesis, the student must submit written thesis report.

Prerequisite: Instructor's consent

## **FACILITIES**

### **Instructional Facilities**

California South Bay University (CASBU) is located in Campbell, a city in the world famous Silicon Valley in the bay area in California. The University is ideally located close to the centers of business and technology. The University is 40 minutes away from San Francisco Downtown, one of the top the financial center of the world, and it is 10 minutes away from San Jose, the technology hub of the world. The University conveniently accessible via mass transportation with a bus stop located on its front gate and the BART station located within walking distance. Motorists can access us via highways 101 and 237 at the Lawrence Expressway exit. World headquarters of many household names, such as Google, Yahoo, Intel, HP and Cisco are located within less than 30 minutes drive from CASBU.

The school consists of classrooms, administrative offices, laboratories, libraries, student lounge, cafeterias, computer labs, kitchen and restrooms. All the facilities on campus have teaching equipment sufficient to meet educational needs. Abundant and free onsite parking is available for students use.

### **Teaching and Research**

CASBU's teaching, research, and laboratory facilities are equipped with state-of-the-art hardware and software tools. In keeping pace with the advancement in information technology, CASBU's IT Department provides a modern digital campus environment to the faculty, students, and administrative staff.

Based on the hardware and software requirements for each course, the classroom is set up accordingly at the beginning of each semester. A group of classrooms are equipped with computer systems and Internet facility for the students to use. Modern design, simulation, and testing tools are installed based on class requirements.

### **University Library Resources**

CASBU has always sought to increase the vast reference support and library resources made available to CASBU students, particularly our Master's Degree students who need the most up to date research data, most commonly found in expensive subscription-based computer databases. CASBU has its own in-house library, which contains thousands of books and reference sources for students use. CASBU also maintain links to worldwide open-access digital libraries for use by its faculty and students and accessed by a high-speed Internet connection. In addition, the Campbell City library is just 5 minutes away.

All CASBU students' privileges of accessing to the library include: obtaining a library card; checking out books, CD's, DVD's and other materials; utilizing the new e-library; complete support from the university librarian; support for multi-lingual students (including students who speak Mandarin, Cantonese, Korean or Japanese); and full wireless access with their laptops within the library.

### **Computer Laboratory**

Computer facilities include IC Layout Design Lab and EDA Lab, Networking and Software Testing Lab with full wireless Internet connections. The labs are open from 10:00 AM to 6:00 PM Monday through Friday. Please check with the Registrar for current access hours during each particular term. The use of computers at CASBU is an integral element of all programs. All students are highly encouraged to purchase and bring in their own laptop computers.

Specific software programs for courses teaching circuit design and software design and applications are installed on computers in various classrooms and laboratories. Software licensing agreements are observed. Designated learning laboratories for the students to conduct after-class hands-on practice are available to the students daily. Practices focus on the following:

- VLSI/SOC design

- DSP/ Multimedia and interface design

- ASIC/FPGA design

Computer networking, systems administration, and network security

Database administration and database design

Nanosystem design

E-business, business logic design, and digital system development and implementation

The VLSI/SOC laboratory is a dedicated facility to support learning and research projects in the area of VLSI/SOC design and implementations. In this lab a SPARC server is loaded with industry-standard CAE/CAD tools for state-of-the-art sub-micron VLSI/SOC design and implementation. These tools are HSPICE simulators, Synopsys design compilers, the entire Cadence EDA tools suite, Mentor Graphics design tools, and etc.

### **Electronics and Physics Lab**

The Electronics laboratory provides hands-on training accompanying digital and analog circuit classes. Students can practice fundamental engineering and physics related skills needed for future course work and research projects in digital/analog design, simulation, and analysis. The physical lab assistant sets up the lab weekly for the students use.

### **Accounting and Auditing Tools**

Many accounting software programs and auditing software programs are set up in a group of computers for the students to gain hands-on experience with these tools.

### **Audio/Visual Aids for American Language Learning**

Audio/visual materials for improving American language skills are available to all CASBU students who wish to improve their communication skills. Students may use the selected audio and videotapes and software programs and workstations improve English pronunciation, grammar, spelling, conversation, etc. Scheduled communication workshops and related activities conducted by English language instructors provide additional assistance to the interested students.

### **Training and Workshops**

Student Services of CASBU provides scheduled training activities and workshops to the students on job affairs, job placement, further education training, and seminars in different programs.

### **Computer Networks**

There are a variety of high-performance computers on campus to support teaching and learning, including high-capacity servers, advanced workstations, and modern PCs. Both Wi-Fi and wired high-speed Internet access is available to the students on campus.



## **STUDENT ACTIVITIES AND SERVICES**

### **University Orientation**

All new students are **required** to attend the new student orientation workshop offered before the beginning of each semester. On the Orientation Day, orientation packages are distributed to the new students; all administrative staff members and representatives from the faculty and the student body welcome the new students; both presentations and hands-on workshops are conducted to inform and to connect. The new students are informed of the staff's duties in order to receive proper administrative services, the facility and learning resources information to prepare them for classes, and important policies to stay focused on their academic objectives. Hands-on workshops may also be conducted to show new students how to use the university computer networks system, how to properly set up their accounts for printing services, how to make online requests for services as well as how to access the university library online system to find library collection information. New students who have not registered in classes also receive academic advising.

All CASBU students are welcome to attend the orientation to welcome the new students and receive current university information.

### **Academic Advising**

Each student is assigned an academic advisor, who will give academic advice regarding the student's progress on a regular basis.

### **Student Health, Safety, and Housing**

All full-time students are required to have their own medical insurance coverage. CASBU will assist them in contacting appropriate insurance companies.

CASBU does not maintain housing for students, nor does it make specific recommendations regarding housing. However, public housing accommodations are available in the community. CASBU campus is located in a very convenience location. There are plenty of apartments and residences that are close to campus.

### **Student Governance**

The CASBU Student Association offers students the opportunity to participate in the governing of the institution. Elected officers interact regularly with assigned faculty advisors to coordinate student functions, organize extra-curricular activities, and offer student input concerning university policies.

### **Student Organizations and Alumni Association**

Students at CASBU are free to organize and to join associations whose stated purpose is consistent with the University's mission. All student organizations seeking CASBU support must be registered. The CASBU Alumni Association is operated under the Student Service Office of the University, which keeps a current list of all alumni, and conducts alumni activities on a regular basis such as class reunions and career counseling.

### **Academic Achievement Recognition**

Faculty and student awards are given annually during commencement ceremonies to recognize the outstanding achievements of faculty, staff, and students.

### **Tutorial Program**

A tutorial program provide international students with assistance in English studies in addition to CASBU's regular tutorial classes for academic courses conducted by our teaching faculty and teaching assistants.

## **Student Tuition Recovery Fund**

The Student Tuition Recovery Fund (STRF) was established by the Legislature to protect any California Resident who attends a private postsecondary institution from losing money if the student prepaid tuition and suffered a financial loss as a result of the school: closing; failing to live up to its enrollment agreement; or, refusing to pay a court judgment.

To be eligible, the student must be a "California resident" and reside in California at the time the enrollment is signed or when the student receives lessons at a California mailing address from an approved institution offering correspondence instruction. A student temporarily residing in California for the sole purpose of pursuing an education, specifically one holding a student visa, is not considered a "California resident."

To qualify for STRF reimbursement you must file a STRF application within one year of receiving notice from the council that the school is closed. If you do not receive notice from the council you have four years from the date of closure to file a STRF application. If a judgment is obtained you must file a STRF application within 2 years of the final judgment.

It is important that you keep copies of the enrollment agreement, financial aid papers, receipts or any other information that documents the monies paid to the school. Questions regarding the STRF may be directed to: Bureau for Private Post-Secondary Education, 2535 Capitol Oaks Drive, Suite 400, Sacramento California, 95833.

## **Sexual Assault**

An allegation of sexual assault must be promptly reported to the Director of Student Services who will, in turn, report the allegation to the Police Department. The University will not attempt to adjudicate allegations of felonious acts.

## **Career Placement Services**

As a key component of Student Services, career placement services help the students in the following areas: (1) Prepare resumes and sharpen interview skills, (2) Conduct career seminars and job fairs, (3) Identify the students' strengths and interests and provide career advice, (4) Provide internship opportunities to the students (5) Provide library materials and an online tool (via the CASBU online Service Center) for the students to gain access to various sources of job information. The Career Center in the library provides the students with access to a collection of books, articles, magazines, brochures, and videotapes about employment opportunities. The students may also use the computer facility in the Career Center for job search. Employment information can be found on the online job posting board through the e-Career Center in the CASBU Online Service Center.

The service provides career planning and job search assistance prior to and after students' graduation.

All students are encouraged to begin working with a Student Services counselor on their resumes and career development plans in the early stages of their academic study.



## UNIVERSITY OFFICERS

**Ms. Ling Li**

*President*

**Hiram Willis**

*Executive Vice President*

**Dr. Mike Ming Mao**

*Vice President*

**J.D. Mark Cazem**

*Director of Academic Affairs*

**Dr. Fred Dalili**

*Dean, School of Business*

**Roney Warmack**

*Dean, School of Green Technology*

**Dr. Yi Zhang**

*Dean of Engineering School*

**Ms. Sunny Zhang**

*Education Administrator*

**Ms. Junjun Zhang**

*Education Administrator*

**Virginia Baun**

*Student Service Officer*

**Mr. Venu Aruva**

*Library and Lab Officer*

## FACULTY

### **Dr. Frank Bautista**

- Doctor of Medicine, Francisco Q. Duque Medical Foundation, Phils
- Bachelor of Science in Biology, Saint Louis University, Phils

### **J.D. Mark Cazem**

- J.D., University of California, Hastings College of the Law, San Francisco, CA
- MBA, San Francisco State University, San Francisco, CA

### **Dr. Paichun Chang**

- Ph.D. in Materials Science Engineering, University of California, Irvine, CA
- Master of Science in Electrical Engineering, University of California, Irvine, CA
- Bachelor of Science, National Taiwan University

### **Ms. Alice Cheng**

- MBA, Northwestern Polytechnic University, Fremont, CA
- Bachelor of Information Technology, American University in Dubai, Dubai, U.A.E.

### **Mr. Jing Chen**

- Master of Science, Computer Science, Stanford University, Palo Alto, CA
- Bachelor of Computer Science, Huazhong University of Science and Technology, China.

### **Ms. Ice Hui Chuan Chien**

- M.B.A. in Project Analysis, Northwestern Polytechnic University, CA
- Bachelor of Science, Chung Hua University, China

### **Dr. Fred Dalili**

- Ph.D. in Education, University of Akron, OH
- Master of Arts in Education, University of Akron, OH

### **Mr. Jerry Fu**

- Master of Electrical Engineering, Rensselaer Polytechnic Institute, NY, USA
- Master of Electrical Engineering, Tsinghua University, Beijing, China
- Bachelor of Electrical Engineering, Xi'an Jiaotong University, China

### **Dr. Chang Q Jiang**

- Ph. D. of Systems Science, City University of London, UK
- Master of Engineering in Systems Engineering, Tianjin University, Tianjin, China
- Bachelor of Electrical Engineering, Tianjin University, Tianjin, China

### **Dr. William Jiang**

- Ph. D. of Phil. Columbia University, New York, USA
- Master of Art/ Master of Science, University of Illinois, USA

### **Mr. Philip Kang**

- E. M. B.A, Duke University, Durham, NC
- Bachelor of Science in Computer Science, University of Kentucky, Lexington, NY

### **Dr. Azim Khan**

- Ph.D. in Engineering Sciences, University of Nebraska, Lincoln, NE
- Master of Science in Electrical and Computer Engineering, University of Nebraska, Lincoln, NE
- Master of Arts in Applied Mathematics, University of Nebraska, Lincoln, NE
- Master of Science in Physics, University of Nebraska, Lincoln, NE

**Dr. Mike Ling**

- Ph. D. in Condensed Matter Physics, University of Pennsylvania, Pennsylvania, USA
- Master of Science in Computer and Information Science, University of Pennsylvania, Pennsylvania, USA
- Master of Science in Condensed Matter Physics, Iowa State University, Iowa, USA

**Dr. Dahai Liu**

- Ph. D. in Biochemistry and Molecular Biology, University of California, Los Angeles, USA
- Master of Science in Biochemistry and Molecular Biology, University of California, Los Angeles, USA
- Master of Science in Zoological Cell Biology, East China Normal University

**Dr. John (Xiong) Liu**

- Ph.D in Electrical Engineering, University of California, Los Angeles, CA, USA
- Master of Electrical Engineering, University of California, Los Angeles, CA, USA
- Bachelor of Electrical Engineering, Fudan University, Shanghai, China

**Dr. Harry M. Mahon**

- Ph.D in Chemical Engineering, University of Florida, Jacksonville, FL
- Bachelor of Chemical Engineering, California Institute of Technology, CA

**Mr. Gary Mercuri**

- Master of Business Administration, Finance, Notre Dame De Namur University, Belmont, CA
- Bachelor of Environmental Studies, San Jose State University, San Jose, CA

**Ms. Yohana Nevilya**

- Master of Mass Communication, St. Cloud State University, MN
- Bachelor of Industrial Engineering, Bandung Institute of Tech, Indonesia

**Mr. Sean O'Grady**

- Bachelor of International Studies, University of California, Irvine, CA, USA
- TESOL/TEFL certified, Interlingua, Rome, Italy

**Dr. Leo Pang**

- Ph.D in Computer Science Engineering, Stanford University, Palo Alto, CA
- Master of Science, Computer Science, University of Science and Technology, China.

**Ms. Stacey Peralta**

- Masters of Physiology & Biology, San Francisco State University, San Francisco, CA
- Bachelor of Biology, Oregon State University, Corvallis, OR

**Ms. Margarita Perez**

- College of the Sequoias, Visalia, CA

**Dr. Ziqiang Qiu**

- Ph.D in Solid-State Physics, Johns Hopkins University, MD, USA
- Bachelor of Physics, Beijing University, China

**Dr. Robert A. Roos**

- Juris Doctor, Loyola University of Los Angeles, Los Angeles, CA
- Doctor of Social Welfare, University of California, Los Angeles, CA
- Bachelor of Business Administration, University of California, Los Angeles, CA



**Dr. Michael C Sugarman**

- Ph.D in Neuroscience, Molecular Biology, University of California, Irvine, CA, USA
- Master of Neuroscience, Molecular Biology, University of California, Irvine, CA, USA
- Bachelor of Biology/Psychology, Union College, Schenectady, New York, USA

**Ms. Stella Ning-Tang**

- Attorney at Law, Member of State Bar of New York
- Master of Law, Seattle University School of Law, Seattle, USA
- Bachelor of Law, East China University of Political Science and Law, China

**Dr. Dan Teng**

- Ph.D in Semiconductor Physics, University of Notre Dame, USA
- Master of Physics, Tsinghua University, China
- Bachelor of Physics, Tsinghua University, China

**Dr. Shougang Wang**

- Ph.D in Physical Chemistry, Brown University, Providence, RI
- Master of Science, Physical Chemistry, the Chinese Academy of Science, China.
- Bachelor of Chemistry, Tsinghua University, China.

**Dr. Cynthia Wan**

- Ph.D. in Journalism & Mass Communication, University of Wisconsin-Madison, Madison, WI, USA
- Master of Journalism, University of Texas at Austin, Austin, TX, USA

**Mr. Eugene Wang**

- Master of Computer Science, Santa Clara University, CA, USA
- Bachelor of Electrical Engineering, UC Berkeley, CA, USA

**Dr. Yadong Wang**

- Ph.D in Electrical and Computer Engineering, University of Rhode Island, Kingston, RI
- Master of Electrical Engineering, Nanjing University of Aeronautics and Astronautics, China.
- Bachelor of Zoology Electrical Engineering, Nanjing University of Aeronautics and Astronautics, China.

**Dr. Naibo Yang**

- Ph.D in Ion channel Physiology/Neurobiology, Thomas Jefferson University, USA
- Master of Biomedical Engineering & Instrument, Tianjin University, China
- Bachelor of Biomedical Engineering & Instrument, Tianjin University, China

**Mr. Jian Guo Yu**

- Master in Science, Computer Science, San Jose State University, San Jose, CA
- Bachelor of Computer Science, Shandong University, China.

**Dr. Oliver Yu**

- Ph.D in Management Science & Engineering, Stanford University, USA
- Master of Science in Statistics, Stanford University, USA
- Bachelor of Electrical Engineering, National Taiwan University, Taiwan

**Dr. Yi Zhang**

- Ph.D in Electrical Engineering, University of California Santa Cruz, CA, USA
- Master of Electrical Engineering, University of California Santa Cruz, CA, USA
- Bachelor of Optical Engineering, Zhejiang University, China

**Dr. Jimmy Zhang**

- Ph.D in Physics, University of Science & Technology of China
- Master of Science in Electrical Engineering, Zhejiang University, Hangzhou, China

- Bachelor of Science in Electrical Engineering, Zhejiang University, Hangzhou, China

**Dr. Yifei Zhu**

- Ph.D in Sociology, University of California, Davis, CA
- Master of Arts in Sociology, University of California, Davis, CA
- Bachelor of Arts in English, Beijing Foreign Studies University, China