

# Berkeley City College

## Communication Studies 2.0

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### Overview

College	BCC - Liberal Arts and Social Sciences
Originator	Cora Leighton
Award Type	BCC AA-T Degree

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### Codes and Dates

Curriculum Committee Approval Date	11/17/2022
Top Code	1506.00 - Speech Communication

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### Description

The Associate in Arts in Communication for Transfer Degree is designed to prepare students to complete the baccalaureate degree in communication upon transferring into the CSU system. Communication skills are essential to forming and maintaining personal relationships, acquiring and excelling in a job, and relating to the world around us. Through the study and practice of interpersonal, professional, and intercultural communication skills, students will learn how their perceptions and self-esteem affect their interactions with others. Beyond this, students will improve their abilities to speak, write, and present information effectively, whether in face-to-face interactions or in public or mass-media settings.

Students who successfully complete the AA-T in Communication Studies earn specific guarantees for transfer to the CSU system: admission to a CSU with junior status and priority admission to a local CSU campus and to a program or major in communication studies or a similar major. Students transferring to a CSU campus will be required to complete no more than 60 units after transfer to earn a bachelor's degree.

Students are required to complete 60 semester units that are eligible for transfer to a California State University, including both of the following: (1) The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements and (2) 18-19 semester units with a grade of C or P or better in the major and an overall minimum grade point average (GPA) of at least 2.0 in all CSU transferable coursework. For a more detailed description of Associate Degrees for Transfer, see "Associate Degrees for Transfer (ADT) to a California State University" on page XX.

Students are advised to consult with a Berkeley City College counselor for additional information and to verify transfer requirements.

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### Career Opportunities

Transfer degree

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### Program Learning Outcomes

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

1. Use speaking and listening skills to resolve conflict and get their messages across as intended in interpersonal, small group, and organizational dynamics.
  2. Deliver presentations that are clear in content, structure, and delivery.
  3. Research and analyze the influence and impact of mass media and culture on society.
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### Degree Requirements:

**Complete the following required courses**

COMM 005 and Persuasion and Critical Thinking

**Credit Hours:** (0 Required)

COMM 020 and	Interpersonal Communication Skills	3
COMM 045	Public Speaking	3

**List A: Select two courses from the following:**

**Credit Hours:** (0 Required)

COMM 004 or	The Dynamics of Group Discussion	3
COMM 006 or	Intercultural Communication	3
COMM 019	Survey of Mass Media	3

**List B: Select one course from the following:**

**Credit Hours:** (0 Required)

ANTHR 003 or	Introduction to Social and Cultural Anthropology	3
COMM 003 or	Introduction to Human Communication	3
COMM 010 or	Gender and Communication	3
ENGL 001B or	Composition and Reading	4
MM/VI 017 or	Social Media Production	3
PSYCH 001A or	Introduction to General Psychology	3
SOC 001	Introduction to Sociology	3

**Unit Calculations**

**Credit Hours:** (0 Required)

Total Units Required for the Major: 18-19

General Education (CSU GE or IGETC) Units: 37-39

Elective Units: 2-5

Total Degree Units: 60

# Berkeley City College

## ESOL High Intermediate Certificate of Competency

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### Overview

College	BCC - Liberal Arts and Social Sciences
Originator	Gabriel Winer
Award Type	BCC Certificate of Competency

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### Codes and Dates

State Approval Date	4/12/2019
Curriculum Committee Approval Date	4/07/2022
Board of Trustees Date	3/26/2019
Current Effective Date	1/01/2023
Program Control Number	37790
Top Code	4930.87 - English as a Second Language - Integrated

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### Description

The High Intermediate Certificate of Competency in ESOL verifies that a student has successfully completed three ESOL core classes (Reading and Writing, Listening and Speaking, and Grammar) at the high intermediate level. Students interested in completing this certificate should consult with the ESOL department chair and a counselor.

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### Career Opportunities

This certificate will help prepare students for vocational programs and job advancement.

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### Program Learning Outcomes

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

1. Demonstrate high intermediate skills in English listening, speaking, reading, and/or writing which will allow them to achieve their personal, vocational, and academic goals.
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### Degree Requirements:

Program Courses	Credit Hours:	(0 Required)
ESOL 513 and Reading and Writing	3	0
ESOL 563 and Listening and Speaking	3	0
ESOL 573 Grammar	3	0

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# Berkeley City College

## ESOL Intermediate

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### Overview

College	BCC - Liberal Arts and Social Sciences
Originator	Gabriel Winer
Award Type	BCC Certificate of Competency

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### Description

The ESOL Intermediate Certificate of Competency verifies that a student has successfully completed three ESOL core classes (Reading and Writing, Listening and Speaking, and Grammar) at the intermediate level. Students interested in completing this certificate should consult with the ESOL department chair and a counselor.

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### Career Opportunities

This certificate will help prepare students for vocational programs and job advancement.

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### Program Learning Outcomes

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

1. Demonstrate intermediate skills in English listening, speaking, reading, and/or writing which will allow them to achieve their personal, vocational, and academic goals.
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### Degree Requirements:

<b>Program Courses</b>	<b>Credit Hours:</b>	<b>(0 Required)</b>
ESOL 512 and Reading and Writing 2		0
ESOL 562 and Listening and Speaking 2		0
ESOL 572 Grammar 2		0

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# Laney College

## Accounting

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### Overview

College	Laney - Humanities and Social Sciences Division
Originator	Kim Glosson
Award Type	LAN A.S. Degree

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### Codes and Dates

State Approval Date	2/28/2019
Curriculum Committee Approval Date	11/02/2018
Board of Trustees Date	1/08/2019
Current Effective Date	6/01/2019
Program Control Number	01145
Top Code	0502.00* - Accounting

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### Description

The Accounting Associate of Science program offers courses that provide students interested in accounting with a solid foundation of the industry's knowledge and required skills. Students are prepared for entry-level accounting positions. If transferring to a 4-year university, please see a counselor for more information.

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### Career Opportunities

The Accounting Associate of Science program prepares students for a number of entry-level accounting jobs in bookkeeping, payroll, accounts receivable and accounts payable, tax preparation and administration, and financial services organization.

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### Program Learning Outcomes

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

1. Ethics and Personal Responsibility: Apply legal and ethical principles in business decision making.
  2. Critical Thinking: Analyze business situations and recommend a solutions or plans for improvement.
  3. Computational Skills: Prepare financial statements for a publicly held enterprise and analyze results.
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### Degree Requirements:

<b>Required core courses (11 units)</b>	<b>Credit Hours:</b> (0 Required)
BUS 001A      Financial Accounting	4
BUS 001B      Managerial Accounting	4
BUS 002        Introduction to Business Law	3
<b>Select at least 8 units from the following: (min 8 units)</b>	<b>Credit Hours:</b> (0 Required)
BUS 004        Cost Accounting	3
BUS 021        Payroll Accounting	2
BUS 024        Computerized Accounting Principles	3
BUS 209        Fundamentals of Income Tax	4

BUS 239	QuickBooks	1.5
<b>Select at least 4 units from the following: (min 4 units)</b>		<b>Credit Hours:</b> (0 Required)
BUS 043B	Introduction to Microsoft Excel for Business Applications	4
BUS 206	Certified Bookkeeper Exam Review	4
<b>Select at least 6 units from the following: (min 6 units)</b>		<b>Credit Hours:</b> (0 Required)
BUS 005	Human Relations in Business	3
BUS 010	Introduction to Business	3
BUS 054	Small Business Management	3
BUS 201	Business Communications **	3
BUS 210	Financial Management and Investments	3
ECON 001	Principles of Economics (Macro-Economics)	3
ECON 002	Principles of Economics (Micro-Economics)	3
Total Major Units:		29
		<b>Credit Hours:</b> (0 Required)
General Education requirements		19
		<b>Credit Hours:</b> (0 Required)
Electives to meet 60 units:		
		<b>Credit Hours:</b> (60 Required)
Total Units:		60
		<b>Total: 60</b>

\*\* ENGL 1A or 1AS may be substituted for BUS 201.

# Laney College

## Accounting

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### Overview

College	Laney - Humanities and Social Sciences Division
Originator	Kim Glosson
Award Type	LAN Certificate of Achievement

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### Codes and Dates

State Approval Date	2/28/2019
Curriculum Committee Approval Date	11/02/2018
Board of Trustees Date	1/08/2019
Current Effective Date	6/01/2019
Program Control Number	21536
Top Code	0502.00* - Accounting

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### Description

The Accounting Certificate of Achievement program offers courses that provide students interested in accounting with a solid foundation of the industry's knowledge and required skills. Students are prepared for entry-level accounting positions. If transferring to a 4-year university, please see a counselor for more information.

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### Career Opportunities

The Accounting Certificate of Achievement prepares students for entry-level positions working in payroll, accounts receivable and accounts payable, income tax firms, and financial services organization.

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### Program Learning Outcomes

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

1. Prepare financial statement for a publicly held enterprise and analyze results.
  2. Design and complete professional assignments using computer applications as Microsoft Excel, QuickBooks, general ledger software to summarize business transactions.
  3. Apply legal and ethical principles when preparing business and accounting reports.
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### Degree Requirements:

<b>Core Courses (8 units):</b>	<b>Credit Hours:</b> (8 Required)
BUS 001A      Financial Accounting	4
BUS 001B      Managerial Accounting	4
<b>Select at least 5 units from the following (min 5 units):</b>	<b>Credit Hours:</b> (5 Required)
BUS 004      Cost Accounting	3
BUS 021      Payroll Accounting	2
BUS 206      Certified Bookkeeper Exam Review	4
BUS 209      Fundamentals of Income Tax	4
BUS 239      QuickBooks	1.5
<b>Select one of the following (3-4 units):</b>	<b>Credit Hours:</b> (3 - 4 Required)

BUS 002	Introduction to Business Law	3
BUS 010	Introduction to Business	3
BUS 201	Business Communications *	3
BUS 043B	Introduction to Microsoft Excel for Business Applications	4

**Total: 16.000 - 17.000**

\*: ENGL 1A or 1AS may be substituted for BUS 201.

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# Laney College

## Advanced Precision Machining

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### Overview

College	Laney - Career and Technical Education Division
Originator	Adam Balogh
Award Type	LAN Certificate of Achievement

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### Description

The Laney College Advanced Precision Machining CA is a career education program which prepares students for the highest level of work in precision manufacturing. The certificate is intended for advanced machine technology students and students with prior work experience as machinists to grow their skill sets to meet increasing demands for precision, miniaturization, complex non-prismatic geometries, exotic materials, automation and quality control in high tech sectors, like medical device, semiconductor, optics and scientific research. The coursework includes fundamentals of precision engineering, multi-axis CNC machining, micromachining, diamond turning, geometric dimensioning and tolerancing (GD&T), coordinate measuring machines (CMMs), and noncontact optical metrology.

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### Career Opportunities

machinist, R&D machinist, CNC machinist, CNC machine operator, CNC setup technician, CNC programmer, diamond turning technician

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### Program Learning Outcomes

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

1. Demonstrate safe work procedures while operating CNC machine tools and other shop equipment. This includes selection and use of personal protective equipment, disposal of hazardous materials, working around particulates, material handling, parts cleaning, lab hygiene.
  2. Develop a foundation of skills for setup, operation and programming of advanced CNC machine tools and metrology equipment to manufacture complex parts and inspect them to ensure they meet engineering specifications. Machine tools include 5-axis machining centers, turning centers with live tooling, diamond turning machines. Metrology equipment includes high resolution electronic gages, coordinate measuring machines, measuring microscopes, profilometers, 3D optical profilers, interferometers.
  3. Demonstrate technical literacy in reading and writing technical documents and conducting independent research; determining required specifications based on engineering drawings and part function; applying mathematics in problem solving; programming in G-code with macro variables, using conversational programming, using CAM software; applying the principles of precision engineering, such as kinematic design, to workholding and measuring problems.
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### Degree Requirements:

<b>Core Courses (10 Units):</b>		<b>Credit Hours:</b>	<b>(10 Required)</b>
MACH 032	Multi-Axis CNC Machining		4
MACH 075	Geometric Dimensioning and Tolerancing		2
MACH 214	Ultraprecision and Micromachining		4
			<b>Total: 10</b>

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# Laney College

## Basic Manufacturing

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### Overview

College	Laney - Career and Technical Education Division
Originator	Adam Balogh
Award Type	LAN Certificate of Achievement

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### Description

The Laney College Basic Manufacturing CA is a career education program which provides students with theoretical knowledge and hands-on skills required for entry-level work in precision manufacturing. Coursework includes shop safety, operation of machine tools, engineering drawings, 3D solid modeling with CAD, and technical mathematics. The certificate is intended for students who want to continue on to more advanced machining curriculum and for students from other departments who would benefit from a survey of manufacturing processes. The certificate is stackable with the Manual Machining and CNC Machining certificates.

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### Career Opportunities

machinist, manual machinist, CNC machinist, CNC machine operator, CNC setup technician, CNC programmer

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### Program Learning Outcomes

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

1. Demonstrate safe work procedures while operating hand tools and machine tools, as well as use of personal protective equipment and disposal of hazardous materials.
  2. Develop a foundation of skills for operating common shop equipment to manufacture parts which meet engineering specifications. This includes conventional machine tools like mill, lathe, drill press and grinders, as well as measuring tools.
  3. Demonstrate technical literacy in reading and writing technical documents, determining required specifications based on engineering drawings, applying mathematics in problem solving and using computer software in design and manufacture.
- 

### Degree Requirements:

<b>Core Courses (12 units):</b>	<b>Credit Hours:</b> (12 Required)
MACH 020      CAD Solid Modeling with Solidworks	4
MACH 205      Engineering Drawings for Machinists, Welders, and Industrial Maintenance Technicians	3
MACH 210      Machine Technology I	5
<b>Math Requirement: (4 Units):</b>	<b>Credit Hours:</b> (4 Required)
MATH 220A and    Technical Mathematics with Algebra - Part 1 (Lab)	0.5
MATH 220B and    Technical Mathematics with Algebra - Part 2 (Lab)	0.5
MATH 220C and    Technical Mathematics with Algebra - Part 3 (Lab)	0.5
MATH 220D and    Technical Mathematics with Algebra - Part 4 (Lab)	0.5
MATH 220E and    Technical Mathematics with Geometry - Part 1 (Lab)	0.5
MATH 220F and    Technical Mathematics with Geometry - Part 2 (Lab)	0.5
MATH 220G or     Technical Mathematics with Trigonometry (Lab)	1
MATH 221          Technical Mathematics	4

**Total: 16**

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# Laney College

## Building Automation Systems

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### Overview

College	Laney - Career and Technical Education Division
Originator	Sappho Su
Award Type	LAN A.S. Degree

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### Description

The Associate of Science in Building Automation Systems (BAS) prepares students to install, service, operate, and maintain BAS in commercial buildings. BAS is utilized to control mechanical, energy, lighting, fire safety, and security systems. Students who complete this program can significantly impact building energy consumption. Graduates can seek employment as BAS technicians and engineers with manufacturers, vendors, construction companies, and large facilities such as bio-pharmaceuticals, educational and government facilities, hospitals, and office buildings.

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### Career Opportunities

Graduates can seek employment as BAS technicians, programmers, and sales specialists with control systems and building automation manufacturers, vendors, mechanical contractors, as well as control systems technicians in large facilities, such as university campuses, hospitals, hotels, government facilities, or bio-pharmaceuticals.

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### Program Learning Outcomes

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

1. Describe the building commissioning process
  2. Analyze BAS for energy saving opportunities in buildings, including control systems documentation, energy efficient control routines, data analysis, performance monitoring, and energy efficient policies.
  3. Explain the theory relevant to building automation, including technical math, physics for building science, electricity, computer hardware and software, and techniques for reading specifications.
- 

### Degree Requirements:

<b>First Semester (9.5 units)</b>	<b>Credit Hours:</b>	(0 Required)
ECT 214	Technical Mathematics for ECT	3
ECT 028	Energy Management and Efficiency in Building Systems	2
ECT 021	Introduction to Direct Digital Controls	3
ECT 012	Blueprint Reading and Interpretation for ECT	1.5
<b>Second Semester (9.5 units)</b>	<b>Credit Hours:</b>	(0 Required)
E/ET 202	Fundamentals of Electricity for ECT	2
ECT 027	Advanced Direct Digital Controls	3
ECT 022	Commercial HVAC Systems and Troubleshooting	3
ECT 036	Energy Issues, Policies, and Codes	1.5
<b>Third Semester (9 units)</b>	<b>Credit Hours:</b>	(0 Required)
ECT 213	Indoor Air Quality and Building Envelope	1
ECT 035	Control Systems Integration & Design	3

ECT 025	Introduction to Building Commissioning	2
E/ET 221	Motors and Drives	3

Total Major Units: **Credit Hours:** (0 Required) 28

General Education Requirements: **Credit Hours:** (0 Required) 19

Electives to meet 60 units **Credit Hours:** (0 Required)

**Total Units:** 60 **Credit Hours:** (60 Required)

**Total: 60**

# Laney College

## Building Automation Systems

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### Overview

College	Laney - Career and Technical Education Division
Originator	Sappho Su
Award Type	LAN Certificate of Achievement

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### Description

The Certificate of Achievement in Building Automation Systems (BAS) prepares students to install, service, operate, and maintain BAS in commercial buildings. BAS is utilized to control mechanical, energy, lighting, fire safety, and security systems. Students who complete this program can significantly impact building energy consumption. Graduates can seek employment as BAS technicians and engineers with manufacturers, vendors, construction companies, and large facilities such as bio-pharmaceuticals, educational and government facilities, hospitals, and office buildings.

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### Career Opportunities

Graduates can seek employment as BAS technicians, programmers, and sales specialists with control systems and building automation manufacturers, vendors, mechanical contractors, as well as control systems technicians in large facilities, such as university campuses, hospitals, hotels, government facilities, or bio-pharmaceuticals.

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### Program Learning Outcomes

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

1. Describe the building commissioning process
  2. Analyze BAS for energy saving opportunities in buildings, including control systems documentation, energy efficient control routines, data analysis, performance monitoring, and energy efficient policies.
  3. Explain the theory relevant to building automation, including technical math, physics for building science, electricity, computer hardware and software, and techniques for reading specifications.
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### Degree Requirements:

<b>First Semester (9.5 units)</b>	<b>Credit Hours:</b>	(9.5 Required)
ECT 214	Technical Mathematics for ECT	3
ECT 028	Energy Management and Efficiency in Building Systems	2
ECT 021	Introduction to Direct Digital Controls	3
ECT 012	Blueprint Reading and Interpretation for ECT	1.5
<b>Second Semester (9.5 units)</b>	<b>Credit Hours:</b>	(6.5 Required)
E/ET 202	Fundamentals of Electricity for ECT	2
ECT 027	Advanced Direct Digital Controls	3
ECT 022	Commercial HVAC Systems and Troubleshooting	3
ECT 036	Energy Issues, Policies, and Codes	1.5
<b>Third Semester (9 units)</b>	<b>Credit Hours:</b>	(9 Required)
ECT 035	Control Systems Integration & Design	3
ECT 213	Indoor Air Quality and Building Envelope	1

E/ET 221	Motors and Drives	3
ECT 025	Introduction to Building Commissioning	2

**Total: 28**

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# Laney College

## Business Information Systems

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### Overview

College	Laney - Humanities and Social Sciences Division
Originator	Kim Glosson
Award Type	LAN A.S. Degree

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### Codes and Dates

State Approval Date	8/02/2018
Curriculum Committee Approval Date	5/07/2018
Board of Trustees Date	6/12/2018
Current Effective Date	1/01/2019
Program Control Number	01149
Top Code	0514.00* - Office Technology/Office Computer Applications

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### Description

The Business Information System (BIS) Associate of Science program offers courses that provide students interested in learning business applications and technical skills to keep business systems organized. Students are prepared for entry-to-mid level positions with a pathway to transfer to a 4-year institution or future career opportunities.

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### Career Opportunities

The Business Information Systems program prepares students to work in an office environment. It prepares students to assume positions as office managers, supervisors, administrative assistance. These positions use a variety of office technology and computer-based applications (word processing, electronic mail, database, spreadsheets, presentation graphics. Classes emphasize technology, proofreading and editing, document formatting, electronic filing, accounting, and human relations. Students will develop administrative skills necessary to participate as part of the management team. Office management personnel assist in planning, organizing, and controlling the information related activities and in leading or directing people to attain the objectives of the organization. They support and help facilitate accurate communication and information exchange to internal and external customers on a timely basis.

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### Program Learning Outcomes

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

1. Information Competency: Obtain information related to the profession using traditional and electronic sources. Synthesize the information into written or oral business reports.
  2. Critical Thinking: Analyze business situations and recommend solutions or plans for improvement.
  3. Computational Skills: Analyze data and prepare common business and personal financial reports.
- 

### Degree Requirements:

<b>Core Courses (20 units):</b>		<b>Credit Hours:</b>	(0 Required)
BUS 005	Human Relations in Business	3	
BUS 010	Introduction to Business	3	
BUS 020	General Accounting	3	
BUS 038	Introduction to Microcomputers and Business Software	4	
BUS 043B	Introduction to Microsoft Excel for Business Applications	4	

BUS 201 Business Communications 3

**Credit Hours:** (0 Required)

Total Major Units: 20

**Recommended but not required:**

**Credit Hours:** (0 Required)

BUS 021 Payroll Accounting 2

BUS 456D Occupational Work Experience in Business Administration 1 - 4

ECON 002 Principles of Economics (Micro-Economics) 3

**Credit Hours:** (0 Required)

General Education Requirements: 19

**Credit Hours:** (0 Required)

Electives to meet 60 units:

**Credit Hours:** (60 Required)

Total Units: 60

**Total: 60**

# Laney College

## Business Information Systems

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### Overview

College	Laney - Humanities and Social Sciences Division
Originator	Kim Glosson
Award Type	LAN Certificate of Achievement

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### Codes and Dates

State Approval Date	8/02/2018
Curriculum Committee Approval Date	4/15/2016
Board of Trustees Date	6/14/2016
Current Effective Date	1/01/2019
Program Control Number	21542
Top Code	0514.00* - Office Technology/Office Computer Applications

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### Description

The Business Information System (BIS) Certificate of Achievement offers courses that provide students interested in learning business applications and technical skills to keep business systems organized. Students are prepared for entry-to-mid level positions with a pathway to transfer to a 4-year institution or future career opportunities.

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### Career Opportunities

The Business Information Systems program prepares students to work in an office environment. It prepares students to assume positions as office managers, supervisors, administrative assistance. These positions use a variety of office technology and computer-based applications (word processing, electronic mail, database, spreadsheets, presentation graphics. Classes emphasize technology, proofreading and editing, document formatting, electronic filing, accounting, and human relations. Students will develop administrative skills necessary to participate as part of the management team. Office management personnel assist in planning, organizing, and controlling the information related activities and in leading or directing people to attain the objectives of the organization. They support and help facilitate accurate communication and information exchange to internal and external customers on a timely basis.

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### Program Learning Outcomes

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

1. Synthesize information into written or oral business reports.
  2. Analyze business situations and recommend solutions or plans for improvement.
  3. Analyze data and prepare common business and personal financial reports.
- 

### Degree Requirements:

<b>Core Courses (17 units):</b>		<b>Credit Hours:</b> (17 Required)
BUS 005	Human Relations in Business	3
BUS 010	Introduction to Business	3
BUS 038	Introduction to Microcomputers and Business Software	4
BUS 043B	Introduction to Microsoft Excel for Business Applications	4
BUS 201	Business Communications	3

**Recommended but not required:**

**Credit Hours:** (0 Required)

BUS 021	Payroll Accounting	2
BUS 456D	Occupational Work Experience in Business Administration	1 - 4
ECON 002	Principles of Economics (Micro-Economics)	3
BUS 202	Business Mathematics	3
BUS 020	General Accounting	3

**Total: 17**

# Laney College

## Commercial HVAC Systems

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### Overview

College	Laney - Career and Technical Education Division
Originator	Sappho Su
Award Type	LAN A.S. Degree

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### Description

The Associate of Science for Commercial HVAC Systems prepares students to install, service, operate, and maintain mechanical systems in a commercial setting. Environmental Control Technology is a technical program offering the theoretical, technical, and problem-solving skills essential for employment in the heating, ventilation, air conditioning, and refrigeration industries. Graduates can seek employment as HVACR technicians, installers, building engineers, and facilities operators.

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### Career Opportunities

Graduates can seek employment as HVACR technicians, installers, building engineers, and facilities operators.

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### Program Learning Outcomes

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

1. Demonstrate proper and safe use of chemicals, combustible materials, electricity, high-pressure gases, and tools used for mechanical systems.
  2. Explain the theories for refrigeration, air conditioning, and system components effectively in technical language.
  3. Demonstrate and apply critical thinking and analysis to mechanical and building systems.
- 

### Degree Requirements:

<b>First Semester (10 units):</b>	<b>Credit Hours:</b>	(0 Required)
ECT 013	Fundamentals of Refrigeration	4
ECT 012	Blueprint Reading and Interpretation for ECT	1.5
ECT 211	Mechanical and Electrical Codes	1.5
ECT 214	Technical Mathematics for ECT	3
<b>Second Semester (9 units):</b>	<b>Credit Hours:</b>	(0 Required)
E/ET 202	Fundamentals of Electricity for ECT	2
ECT 015	Advanced Refrigeration & Troubleshooting	3
ECT 017	Fundamentals of HVAC and Troubleshooting	3
ECT 018	HVAC Installation Practices	1
<b>Third Semester (9 units):</b>	<b>Credit Hours:</b>	(0 Required)
E/ET 221	Motors and Drives	3
ECT 021	Introduction to Direct Digital Controls	3
ECT 022	Commercial HVAC Systems and Troubleshooting	3
<b>Fourth Semester (8.5 units):</b>	<b>Credit Hours:</b>	(0 Required)
ECT 028	Energy Management and Efficiency in Building Systems	2

ECT 213	Indoor Air Quality and Building Envelope	1
ECT 019	Psychrometrics and Load Calculations	2
ECT 025	Introduction to Building Commissioning	2
WELD 215	Welding for ECT Technicians	1.5

Total Major Units: **Credit Hours:** (0 Required)  
36.5

General Education Requirement: **Credit Hours:** (0 Required)  
19

Electives to meet 60 units: **Credit Hours:** (0 Required)

**Total Units:** **Credit Hours:** (60 Required)  
60

**Total: 60**

# Laney College

## Commercial HVAC Systems

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### Overview

College	Laney - Career and Technical Education Division
Originator	Sappho Su
Award Type	LAN Certificate of Achievement

---

### Description

The Certificate of Achievement for Commercial HVAC Systems prepares students to install, service, operate, and maintain mechanical systems in a commercial setting. Environmental Control Technology is a technical program offering the theoretical, technical, and problem-solving skills essential for employment in the heating, ventilation, air conditioning, and refrigeration industries. Graduates can seek employment as HVACR technicians, installers, building engineers, and facilities operators.

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### Career Opportunities

Graduates can seek employment as HVACR technicians, installers, building engineers, and facilities operators.

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### Program Learning Outcomes

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

1. Demonstrate proper and safe use of chemicals, combustible materials, electricity, high-pressure gases, and tools used for mechanical systems.
  2. Explain the theories for refrigeration, air conditioning, and system components effectively in technical language.
  3. Demonstrate and apply critical thinking and analysis to mechanical and building systems.
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### Degree Requirements:

<b>First Semester (10 units):</b>	<b>Credit Hours:</b> (10 Required)
ECT 012      Blueprint Reading and Interpretation for ECT	1.5
ECT 013      Fundamentals of Refrigeration	4
ECT 211      Mechanical and Electrical Codes	1.5
ECT 214      Technical Mathematics for ECT	3
<b>Second Semester (9 units):</b>	<b>Credit Hours:</b> (9 Required)
E/ET 202      Fundamentals of Electricity for ECT	2
ECT 015      Advanced Refrigeration & Troubleshooting	3
ECT 017      Fundamentals of HVAC and Troubleshooting	3
ECT 018      HVAC Installation Practices	1
<b>Third Semester (9 units):</b>	<b>Credit Hours:</b> (6 Required)
E/ET 221      Motors and Drives	3
ECT 021      Introduction to Direct Digital Controls	3
ECT 022      Commercial HVAC Systems and Troubleshooting	3

**Fourth Semester (8.5 units):**

**Credit Hours:** (8.5 Required)

ECT 028	Energy Management and Efficiency in Building Systems	2
ECT 213	Indoor Air Quality and Building Envelope	1
ECT 019	Psychrometrics and Load Calculations	2
ECT 025	Introduction to Building Commissioning	2
WELD 215	Welding for ECT Technicians	1.5

**Total: 36.5**

# Laney College

## Commercial Music

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### Overview

College	Laney - Liberal Arts Division
Originator	John Reager
Award Type	LAN A.A. Degree

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### Codes and Dates

State Approval Date	2/09/2022
Curriculum Committee Approval Date	11/19/2021
Board of Trustees Date	1/25/2021
Current Effective Date	1/01/2022
Program Control Number	36572
Top Code	1005.00* - Commercial Music

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### Description

The Associate in Arts Degree in Commercial Music is designed for music students whose career goals are focused on the recording industry, concert promotions, and other commercial ventures. Students will explore aspects of the music production process including: recording, marketing, and distribution.

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### Career Opportunities

Audio Engineer, Digital Sound Editor, Small Business Entrepreneur, Concert Promoter, Manager, Event Producer, Arranger, Songwriter.

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### Program Learning Outcomes

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

1. Students will employ proper audio engineering and midi techniques to produce sound recording projects.
  2. Students will create original music projects in line with current industry standards.
  3. Analyze a situation in the music industry and recommend a solution or plan for improvement.
- 

### Degree Requirements:

<b>Group 1: Core Courses (11 units):</b>	<b>Credit Hours:</b>	(0 Required)
MUSIC-CM 001A Beginning MIDI and Electronic Music		3
MUSIC-CM 002A Introduction to Songwriting		3
MUSIC-CM 003A Introduction to Live Sound Systems		2
MUSIC-CM 004A Introduction to Music Business		3
<b>Group 2: Electives (9 units from the following):</b>	<b>Credit Hours:</b>	(0 Required)
MUSIC-CM 001B Intermediate MIDI and Electronic Music		3
MUSIC-CM 001C Advanced MIDI and Electronic Music		3
MUSIC-CM 002B Intermediate Songwriting		3
MUSIC-CM 003B Intermediate Sound Systems		2
MUSIC-CM 004B Intermediate Music Business		3

MUSIC-CM 460	Occupational Work Experience in Commercial Music	1 - 4
MEDIA 111	Basic Audio Production	3
MEDIA 122	Music Video Production	3
MEDIA 150	Pro Tools: Sound Design/Aesthetics for Video, Broadcast and Digital Cinematography	3
MEDIA 155	Basic Sound Recording and Music Video	3
MEDIA 156	Sound Mixing and Mastering	3
MUSIC 101	Music Theory and Culture I	3
MUSIC 105	Classic Guitar I	1
MUSIC 117	Voice I	1
MUSIC 121	Music Skills I	1
MUSIC 130	Elementary Piano Method I	1
MUSIC 151	Pop Music Ensemble	1

**Total Major Units:**

**Credit Hours:** (0 Required)

Total Major Units:

20

**General Education Requirements:**

**Credit Hours:** (0 Required)

General Education Requirements

19

**Credit Hours:** (0 Required)

Elective courses to meet 60

**Credit Hours:** (60 Required)

Total Units:

60

**Total: 60**

# Laney College

## Commercial Music

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### Overview

College	Laney - Liberal Arts Division
Originator	John Reager
Award Type	LAN Certificate of Achievement

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### Codes and Dates

State Approval Date	2/09/2022
Curriculum Committee Approval Date	11/19/2021
Board of Trustees Date	1/25/2022
Current Effective Date	1/01/2022
Program Control Number	37932
Top Code	1005.00* - Commercial Music

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### Description

The Commercial Music Certificate of Achievement is designed for music students whose career goals are focused on the recording industry, concert promotions, and other commercial ventures. Students will explore aspects of the music production process including: recording, marketing, and distribution.

---

### Career Opportunities

Audio Engineer, Digital Sound Editor, Small Business Entrepreneur, Concert Promoter, Manager, Event Producer, Arranger, Songwriter.

---

### Program Learning Outcomes

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

1. Students will employ proper audio engineering and midi techniques to produce sound recording projects.
  2. Students will create original music projects in line with current industry standards.
  3. Analyze a situation in the music industry and recommend a solution or plan for improvement.
- 

### Degree Requirements:

<b>Group 1: Core Courses (11 units):</b>	<b>Credit Hours:</b> (11 Required)
MUSIC-CM 001A Beginning MIDI and Electronic Music	3
MUSIC-CM 002A Introduction to Songwriting	3
MUSIC-CM 003A Introduction to Live Sound Systems	2
MUSIC-CM 004A Introduction to Music Business	3
<b>Group 2: Electives (9 units from the following):</b>	<b>Credit Hours:</b> (9 Required)
MUSIC-CM 001B Intermediate MIDI and Electronic Music	3
MUSIC-CM 001C Advanced MIDI and Electronic Music	3
MUSIC-CM 002B Intermediate Songwriting	3
MUSIC-CM 003B Intermediate Sound Systems	2
MUSIC-CM 004B Intermediate Music Business	3
MUSIC-CM 460 Occupational Work Experience in Commercial Music	1 - 4

MEDIA 111	Basic Audio Production	3
MEDIA 122	Music Video Production	3
MEDIA 150	Pro Tools: Sound Design/Aesthetics for Video, Broadcast and Digital Cinematography	3
MEDIA 155	Basic Sound Recording and Music Video	3
MEDIA 156	Sound Mixing and Mastering	3
MUSIC 101	Music Theory and Culture I	3
MUSIC 105	Classic Guitar I	1
MUSIC 117	Voice I	1
MUSIC 121	Music Skills I	1
MUSIC 130	Elementary Piano Method I	1
MUSIC 151	Pop Music Ensemble	1

**Total: 20**

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# Merritt College

## Communication Studies 2.0

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### Overview

College  
Originator  
Award Type

Merritt - Division I  
Hilary Altman  
MC AA-T Degree

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### Description

Communication skills are essential to forming and maintaining personal relationships, acquiring and excelling in a job, and relating to the world around us. Through the study and practice of interpersonal, professional, and intercultural communication skills, students will learn how their perceptions and self-esteem affect their interactions with others. Beyond this, students will improve their abilities to speak, write, and present information effectively, whether in face-to-face interactions or in public or mass-media settings.

The Communication Studies program prepares students to transfer to a four-year college or university to obtain a degree in Communication or a related Social Science field. The courses in the program also improve job attainment and performance skills, providing students with the training necessary for public speaking, customer service, conflict resolution, and interviewing. Students who complete the Associate in Arts for Transfer (AA-T) degree in Communication Studies will learn and practice cultural awareness, situation analyses, and goal-oriented solutions to practical problems, giving them valuable assets in their future relationships and workplaces. Lastly, this course of study improves students' logic and reasoning skills, thus providing the foundation for understanding math and science, the world around them, and the skills and insights necessary to think through ethical issues and achieve their goals.

The Associate Degree for Transfer (ADT) program allows students to fulfill lower division major requirements at a community college and guarantees transfer with junior status to the California State University (CSU) system. Students who complete an ADT and transfer to a similar major at a CSU are guaranteed a pathway to finish their baccalaureate degrees in 60 semester units.

This AA-T degree program requires students to meet the following requirements:

1. Completion of 60 semester units that are eligible for transfer to the CSU system, including the following:
    - a. The Intersegmental GE Transfer Curriculum (IGETC) or the California State University GE-Breadth Requirements (CSU GE-Breadth).
    - b. A minimum of 18 semester units in a major or area of emphasis, as determined by the community college district.
    - c. A minimum of 12 semester units earned at Merritt College.
  2. Obtainment of a minimum grade point average of 2.0.
  3. Obtainment of a minimum grade of "C" (or "P") for each course in the major.
- 

### Career Opportunities

Customer Service Representative Salesperson Nonprofit Organizer Consultant Focus Group Facilitator  
Interviewer Human Resource Representative Negotiator Startup job in mass media organization

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### Program Learning Outcomes

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

1. Critical Listening and Thinking- Speak, listen, and think critically, to set goals for effective communication, resolve conflict, and get your message across.
2. Public Speaking- Deliver presentations that are clear in message and voice, using appropriate nonverbal communication.
3. Group Cohesion- Strengthen group cohesion through shared vision creation and development.
4. Relationship between Mass Media and Face-to-Face Communication- Analyze the impact and influence that mass media and mediated communication have on face-to-face interactions.
5. Cultural Competency- Interact with people of different cultures in ways that result in shared understanding

6. Self-Awareness and Ethics- Know how your own upbringing and cultural background affect your perceptions of yourself and others and integrate ethics in your everyday communication interactions

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## Degree Requirements:

### General Education (CSU-GE or IGETC) Units

**Credit Hours:** (37 - 39 Required)

#### REQUIRED CORE

**Credit Hours:** (6 Required)

*COMM 45 - Public Speaking (C-ID Descriptor COMM 110)*

*COMM 20 - Interpersonal Communication Skills (C-ID Descriptor COMM 130)*

COMM 045	Public Speaking	3
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COMM 020	Interpersonal Communication Skills	3
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#### LIST A

**Credit Hours:** (9 Required)

*COMM 4 - Dynamics of Group Discussion (C-ID Descriptor COMM 140)*

*COMM 6 - Intercultural Communication (C-ID Descriptor COMM 150)*

*COMM 3 - Introduction to Human Communication (C-ID Descriptor COMM 180)*

COMM 004	Dynamics of Group Discussion	3
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COMM 006	Intercultural Communication	3
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COMM 003	Introduction to Human Communication	3
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#### LIST B

**Credit Hours:** (3 Required)

*PSYCH 1A - Introduction to General Psychology (C-ID Descriptor PSYCH 110)*

*SOC 1 - Introduction to Sociology (C-ID Descriptor SOC 110)*

*ENGL 1B - Composition and Reading (C-ID Descriptor ENGL 120)*

*ENGL 5 - Critical Thinking in Reading and Writing (C-ID Descriptor ENGL 105)*

*COMM 10 - Gender and Communication*

*COMM 19 - Survey of Mass Media*

PSYCH 001A	Introduction to General Psychology	3
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SOC 001	Introduction to Sociology	3
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ENGL 001B	Composition and Reading	4
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ENGL 005	Critical Thinking in Reading and Writing	3
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COMM 010	Gender and Communication	3
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COMM 019	Survey of Mass Media	3
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**Total: 55.000 - 57.000**

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# Merritt College

## Conservation and Resource Management

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### Overview

College	Merritt - Division II
Originator	Benjamin Nelson
Award Type	MC Certificate of Achievement

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### Codes and Dates

State Approval Date	2/20/2021
Curriculum Committee Approval Date	11/12/2020
Board of Trustees Date	1/19/2021
Current Effective Date	8/01/2021
Program Control Number	38648
Top Code	0115.00* - Natural Resources

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### Description

The Conservation and Resource Management Certificate of Achievement offers students a practical approach to ecological management practices. Students learn basic concepts of environmental science, are prepared for more specialized coursework, and establish minimum qualifications for entry-level employment.

Students in the Conservation and Resource Management program will:

- Build a solid foundation in the principles of ecology, and then learn to apply them to solve environmental problems.
  - Focus on habitat restoration, natural resource conservation and management, water quality and watershed analysis, outdoor education, urban planning, and vegetation surveys.
  - Participate in field trips and field-based courses to sites around the Bay Area.
  - Prepare for the following careers: Environmental educator, environmental consultant, habitat restoration technician, watershed analyst, parks maintenance technician, ranger, naturalist, ecologist.
- 

### Career Opportunities

Career opportunities may include: Biological scientists and technicians, conservation scientists and technicians, environmental science and protection technicians, environmental scientists and specialists, fish and game wardens, forest and conservation technicians and workers, foresters, geographers, hydrologists, museum conservators and technicians, natural science managers, soil and plant scientists, and zoologists and wildlife biologists.

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### Program Learning Outcomes

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

1. Articulate the history of the conservation movement in the U.S. (with particular emphasis on California) and put the current state of natural resource management in its proper historical context.
  2. Explain basic principles of ecology and how these principles are used in management and stewardship of natural spaces.
  3. Demonstrate an understanding of how parks and other public natural spaces operate and function.
  4. Demonstrate practical field skills used in the management and stewardship of natural resources.
- 

### Degree Requirements:

#### Major Core Courses

BIOL 015 Environmental Biology

**Credit Hours:** (25 Required)

3

ENVMT 001	Environmental Careers	1
ENVMT 002	Introduction to Sustainable Environmental Systems	4
ENVMT 012 or	Environmental Racism and Justice	3
AFRAM 038	Environmental Racism and Justice	3
ENVMT 055	Principles of Conservation and Land Management	3
ENVMT 056	Management of Public Parks and Natural Resources	3
ENVMT 057	Park Operations Practices and Skills	4
ENVMT 476F	Occupational Work Experience in Environmental Management	3
GEOL 021	Bay Area Field Studies	1

**Major Elective Courses****Credit Hours:** (2 Required)*Select one course for a minimum of 2 units.*

ENVMT 008	Introduction to Outdoor Education	3
ENVMT 014	Environmental Impact Reports	2
ENVMT 039C	Geographical Information Systems Applications	4
ENVMT 044	Introduction to Creek and Watershed Restoration: General Aspects	3
ENVMT 101	Introduction to Climate Change	3
LANHT 081	Arborist Equipment Fundamentals	2

**Interdisciplinary Elective Courses****Credit Hours:** (2 Required)*Select any combination of courses for a minimum of 2 units.*

ART 166	Beginning Botanical Drawing	2
BIOL 005	Botany	4
BIOL 009	Marine Biology	4
BIOL 029	Introduction to Biodiversity	4
ENVMT 061E	Natural History of the Tide Pools of the Greater Bay Area	0.5 - 2
ENVMT 061H	Natural History of the Bay Area: Butterflies and Moths	0.5 - 2
ENVMT 061I	Natural History of the Bay Area: Bryophytes	0.5 - 2
ENVMT 061K	Natural History of the Bay Area: Lichens	0.5 - 2
ENVMT 062S	Natural History of the Islands of California	0.5 - 2
ENVMT 080A	Raptors of Central California and the Bay Area	0.5 - 2
ENVMT 080B	Bird Singing: The Ecology of Bird Songs and Identification by Ear	0.5 - 2
ENVMT 080C	Fundamentals of Ornithology and Birding in Central California/Bay Area	0.5 - 2
GEOG 001	Physical Geography	3
GEOL 001	Introduction to Physical Geology	4
GEOL 012	Environmental Geology	3
LANHT 002	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 002E	Plant Materials: Tree ID and Culture (Evening)	3
LANHT 005EA	Plant Materials: Fall Native Plant ID and Culture (Evening)	3
LANHT 005A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3
LANHT 005EB	Plant Materials: Spring Native Plant ID and Culture (Evening)	3
LANHT 005B	Plant Materials: Spring Native Plant ID and Culture with Lab (Day)	3
LANHT 010	Insect Pests	3
LANHT 016	Soil Management	3

LANHT 023	Plant Terminology	2.5
LANHT 053	Alpines Lab	1
NATAM 076E	California Indian Ecology on the Central Coast	1.5
ENVMT 060A	Natural History of the Bay Area: The Local Parks	0.5 - 3
ENVMT 060B	Natural History of the Bay Area: Mt. Diablo State Park	0.5 - 3
ENVMT 060C	Natural History of the Bay Area: Herpetology	0.5 - 2
ENVMT 060E	Natural History of the Bay Area: Biogeography	0.5 - 2

**Total: 29**

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# Laney College

## Engineering – Computer and Electrical

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### Overview

College	Laney - Mathematics and Sciences Division
Originator	Mallory Barkdull
Award Type	LAN A.S. Degree

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### Description

Engineers apply the theories and principles of science and mathematics to solve real world problems. The engineering major provides a solid foundation in math, science, and engineering concepts, and prepares students looking to transfer to obtain their Bachelor's degree in electrical or computer engineering, or looking to enter the field as an engineering technician. Engineers in the electrical or computer fields work in a wide variety of industries including renewable energy production, computer hardware, environmental controls, signal processing, product design, and machine learning. If planning to transfer to a 4-year university, please see a counselor for more information.

### Career Opportunities

Engineering continues to be an excellent choice for a career. It is the second largest profession, being exceeded only by teaching. Careers in computer and electrical engineering include: computer engineers, electrical engineers, product developers, roboticists, researchers, engineering teachers, and project managers.

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### Career Opportunities

If a student leaves with this degree, they could transfer to a 4-year university to complete their B.S. in computer or electrical engineering or they could enter the workforce as an engineering technician or engineering drafter.

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### Program Learning Outcomes

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

1. Use engineering analysis to formulate logical problem solving approaches, generate solutions, and assess the reasonableness of the solutions
  2. Design, construct, and produce creative solutions specific to the electrical and computer engineering field
  3. Apply scientific principles and mathematical analysis to solve science, math, and engineering problems
- 

### Degree Requirements:

<b>Core Courses (30 units)</b>	<b>Credit Hours:</b>	(0 Required)
CHEM 001A      General Chemistry		5
MATH 003A      Calculus I		5
MATH 003B      Calculus II		5
MATH 003C      Calculus III		5
PHYS 004A      General Physics with Calculus		5
PHYS 004B      General Physics with Calculus		5
<b>Select 1 from the following (3-4 units)</b>	<b>Credit Hours:</b>	(0 Required)
ENGIN 010      Introduction to Engineering		3
ENGIN 018      Introduction to Electrical Engineering		4

ENGIN 022	Engineering Graphics	3
ENGIN 035	Engineering Mechanics - Statics	3
ENGIN 036	Engineering Mechanics of Materials	3
ENGIN 045	Properties of Materials	4
ENGIN 077	Computer Programming for Engineers Using MATLAB	4

**Select 2 from the following (8-9 units)**

**Credit Hours:** (0 Required)

*(Can use ENGIN 18, 45, or 77 if not already used above)*

ENGIN 018	Introduction to Electrical Engineering	4
ENGIN 045	Properties of Materials	4
ENGIN 077	Computer Programming for Engineers Using MATLAB	4
CIS 025	Object Oriented Programming Using C++	4
CIS 027	Data Structures and Algorithms	4
CIS 061	Structure and Interpretation of Computer Programs	5

**Total major units (41-43 units)**

**Credit Hours:** (0 Required)

**GE and electives**

**Credit Hours:** (0 Required)

**Total units**

**Credit Hours:** (60 Required)

**Total: 60**

# Laney College

## Engineering

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### Overview

College  
Originator  
Award Type

Laney - Mathematics and Sciences Division  
Mallory Barkdull  
LAN A.S. Degree

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### Description

Engineers apply the theories and principles of science and mathematics to solve real world problems. The engineering major provides a solid foundation in math, science, and engineering concepts, and prepares students looking to transfer to obtain their Bachelor's degree or looking to enter the field as an engineering technician. This degree is appropriate for students looking to enter most engineering disciplines, including mechanical engineering, civil engineering, and aerospace engineering. Engineers in these disciplines work in a wide variety of industries including renewable energy, robotics, environmental management, structural design, automotive design, and transportation. Students looking to enter computer or electrical engineering, should look at the Engineering – Computer and Electrical A.S. degree. If planning to transfer to a 4-year university, please see a counselor for more information.

### Career Opportunities

Engineering continues to be an excellent choice for a career. It is the second largest profession, being exceeded only by teaching. Careers in engineering include: mechanical engineers, civil engineers, aerospace engineers, product developers, roboticists, water resources engineers, materials scientists, biomedical engineers, renewable energy engineers, chemical engineers, quality control engineers, researchers, engineering teachers, and project managers.

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### Career Opportunities

If a student leaves with this degree, they could transfer to a 4-year university to complete their B.S. in engineering or they could enter the workforce as an engineering technician or engineering drafter.

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### Program Learning Outcomes

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

1. Use engineering analysis to formulate logical problem solving approaches, generate solutions, and assess the reasonableness of the solutions
  2. Design, construct, and produce creative solutions to engineering problems by applying the engineering design process
  3. Apply scientific principles and mathematical analysis to solve science, math, and engineering problems
- 

### Degree Requirements:

#### Core Courses (30 units)

**Credit Hours:** (0 Required)

CHEM 001A	General Chemistry	5
MATH 003A	Calculus I	5
MATH 003B	Calculus II	5
MATH 003C	Calculus III	5

PHYS 004A	General Physics with Calculus	5
PHYS 004B	General Physics with Calculus	5

**Select 3 courses from the following (9 units)**

**Credit Hours:** (0 Required)

ENGIN 010	Introduction to Engineering	3
ENGIN 022	Engineering Graphics	3
ENGIN 035	Engineering Mechanics - Statics	3
ENGIN 036	Engineering Mechanics of Materials	3
MATH 003F	Differential Equations	3

**Choose one course from the following (4 units)**

**Credit Hours:** (0 Required)

ENGIN 018	Introduction to Electrical Engineering	4
ENGIN 045	Properties of Materials	4
ENGIN 077	Computer Programming for Engineers Using MATLAB	4

**Total major units (43 units)**

**Credit Hours:** (0 Required)

**GE and electives**

**Credit Hours:** (0 Required)

**Total units**

**Credit Hours:** (60 Required)

**Total: 60**

# Laney College

## Labor Studies

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### Overview

College	Laney - Humanities and Social Sciences Division
Originator	Felipe Wilson
Award Type	LAN Certificate of Achievement

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### Description

This program is designed to offer both background and current trends in various aspects of labor management issues and relations.

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### Career Opportunities

n/a

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### Program Learning Outcomes

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

1. Critical Thinking: Reflect on unfolding current events affecting workplace issues, recognize trends and identify what strategies from labor studies that could be applied.
  2. Utilize Skill Learned: Utilize negotiation and problem solving skills in labor and employer relations.
  3. Communication Skills: Students will use effective communication, mobilizing and leadership skills in organize, build and strengthen unions.
- 

### Degree Requirements:

<b>Core Courses (15 units)</b>	<b>Credit Hours:</b> (6 Required)
LABST 010 American Labor Movement	3
LABST 012 Collective Bargaining	3
LABST 013 Economics for Labor and Community Leadership	3
LABST 014 Grievance Handling and Arbitration	3
LABST 030 Labor Law	3
<b>Electives (6 units):</b>	<b>Credit Hours:</b> (6 Required)
Complete 6 additional units in LABST	

**Total: 21**

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# Laney College

## Machine Technology

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### Overview

College	Laney - Career and Technical Education Division
Originator	Adam Balogh
Award Type	LAN A.S. Degree

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### Codes and Dates

State Approval Date	2/07/2022
Curriculum Committee Approval Date	11/19/2021
Board of Trustees Date	1/25/2022
Current Effective Date	1/01/2022
Program Control Number	01161
Top Code	0956.30* - Machining and Machine Tools

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### Description

The Laney College Machine Technology AS degree is a career technical education program that prepares students for work as a machinist, manual machinist, CNC machinist, CNC operator, CNC setup technician or CNC programmer. The degree provides students with the theoretical knowledge and hands-on skills required for precision manufacturing, specifically metal cutting, using both manual and computer numerically controlled (CNC) machine tools. Coursework includes shop safety, setup and operation of machine tools, precision measurement, engineering drawings, 3D solid modeling with CAD, CNC programming in G-code and with CAM software, technical mathematics and a survey of welding processes.

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### Career Opportunities

machinist, manual machinist, CNC machinist, CNC machine operator, CNC setup technician, CNC programmer

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### Program Learning Outcomes

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

1. Demonstrate safe work procedures while operating hand tools and machine tools, as well as use of personal protective equipment and disposal of hazardous materials.
  2. Develop a foundation of skills for operating manual and CNC machine tools to manufacture and repair parts to meet engineering specifications.
  3. Demonstrate technical literacy in reading and writing technical documents, determining required specifications based on engineering drawings, applying mathematics in problem solving and using computer software in design and manufacture.
- 

### Degree Requirements:

<b>Core Courses (28 units):</b>		<b>Credit Hours:</b> (0 Required)
MACH 020	CAD Solid Modeling with Solidworks	4
MACH 030	Introduction to CNC Programming	4
MACH 031	Advanced CNC and CAD/CAM Programming	4
MACH 205	Engineering Drawings for Machinists, Welders, and Industrial Maintenance Technicians	3
MACH 210	Machine Technology I	5
MACH 220	Machine Technology II	5
WELD 205	Introduction to Welding	3

**Elective Courses (4 or 5 units):**

MACH 230	Machine Technology III	<b>Credit Hours:</b> (0 Required)	5
MACH 032	Multi-Axis CNC Machining		4

**Math Requirement (4 units):**

MATH 220A and	Technical Mathematics with Algebra - Part 1 (Lab)	<b>Credit Hours:</b> (0 Required)	0.5
MATH 220B and	Technical Mathematics with Algebra - Part 2 (Lab)		0.5
MATH 220C and	Technical Mathematics with Algebra - Part 3 (Lab)		0.5
MATH 220D and	Technical Mathematics with Algebra - Part 4 (Lab)		0.5
MATH 220E and	Technical Mathematics with Geometry - Part 1 (Lab)		0.5
MATH 220F and	Technical Mathematics with Geometry - Part 2 (Lab)		0.5
MATH 220G or	Technical Mathematics with Trigonometry (Lab)		1
MATH 221	Technical Mathematics		4

Total Major Units:

**Credit Hours:** (0 Required)  
36 - 37

General Education Requirements

**Credit Hours:** (0 Required)  
19

Electives to meet 60 units

**Credit Hours:** (0 Required)

Total Units:

**Credit Hours:** (60 Required)  
60

**Total: 60**

# Laney College

## Machine Technology

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### Overview

College	Laney - Career and Technical Education Division
Originator	Adam Balogh
Award Type	LAN Certificate of Achievement

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### Codes and Dates

State Approval Date	2/07/2022
Curriculum Committee Approval Date	11/19/2021
Board of Trustees Date	1/25/2022
Current Effective Date	1/01/2022
Program Control Number	21558
Top Code	0956.30* - Machining and Machine Tools

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### Description

The Laney College Machine Technology CA is a career technical education program that prepares students for work as a machinist and CNC operator and/or programmer. The certificate provides students with the theoretical knowledge and hands-on skills required for precision manufacturing, specifically metalcutting, using both conventional and modern computer numerically controlled (CNC) machine tools. The coursework also covers technical mathematics and a survey of welding processes.

---

### Career Opportunities

machinist, manual machinist, CNC machinist, CNC machine operator, CNC setup technician, CNC programmer

---

### Program Learning Outcomes

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

1. Demonstrate safe work procedures while operating hand tools and machine tools, as well as use of personal protective equipment and disposal of hazardous materials.
  2. Develop a foundation of skills for operating conventional and CNC machine tools to manufacture and repair parts to meet engineering specifications.
  3. Demonstrate technical literacy in reading and writing technical documents, determining required specifications based on engineering drawings, applying mathematics in problem solving and using computer software in design and manufacture.
- 

### Degree Requirements:

<b>Core Courses (33 units):</b>		<b>Credit Hours:</b> (33 Required)
MACH 020	CAD Solid Modeling with Solidworks	4
MACH 030	Introduction to CNC Programming	4
MACH 031	Advanced CNC and CAD/CAM Programming	4
MACH 205	Engineering Drawings for Machinists, Welders, and Industrial Maintenance Technicians	3
MACH 210	Machine Technology I	5
MACH 220	Machine Technology II	5
MACH 230	Machine Technology III	5
WELD 205	Introduction to Welding	3

**Math Requirement (4 units):****Credit Hours:** (4 Required)

MATH 220A	Technical Mathematics with Algebra - Part 1 (Lab)	0.5
MATH 220B	Technical Mathematics with Algebra - Part 2 (Lab)	0.5
MATH 220C	Technical Mathematics with Algebra - Part 3 (Lab)	0.5
MATH 220D	Technical Mathematics with Algebra - Part 4 (Lab)	0.5
MATH 220E	Technical Mathematics with Geometry - Part 1 (Lab)	0.5
MATH 220F	Technical Mathematics with Geometry - Part 2 (Lab)	0.5
MATH 220G or	Technical Mathematics with Trigonometry (Lab)	1
MATH 221	Technical Mathematics	4

**Total: 37**

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# Laney College

## Management and Supervision

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### Overview

College	Laney - Humanities and Social Sciences Division
Originator	Kim Glosson
Award Type	LAN A.S. Degree

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### Codes and Dates

State Approval Date	4/09/2018
Curriculum Committee Approval Date	12/01/2017
Board of Trustees Date	1/23/2018
Current Effective Date	1/22/2018
Program Control Number	21540
Top Code	0506.00* - Business Management

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### Description

The Management and Supervision Associate of Science program offers courses that provide students interested in management with a solid foundation of the knowledge, skills, and strategies to achieve organizational goals. Students are prepared for entry or mid-level positions with a pathway to transfer to a 4-year institution or future career opportunities.

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### Career Opportunities

Entry level managerial positions or administrative services managers.

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### Program Learning Outcomes

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

1. Evaluate how management significantly impacts organizational performance and success.
  2. Develop communication skills to effectively address and resolve work related issues.
  3. Diagnose appropriate motivational theories to actively engage and empower employees.
- 

### Degree Requirements:

#### Core Courses (18 units):

**Credit Hours:** (0 Required)

BUS 005	Human Relations in Business <sup>+</sup>	3
BUS 056	Human Resources Management	3
M/SVN 060	Introduction to Management	3
M/SVN 061	Psychology of Management	3
M/SVN 064	Organization and Management	3
M/SVN 082	Essentials of Managerial Communications	3

#### Select one of the following (4 units):

**Credit Hours:** (0 Required)

BUS 038 or	Introduction to Microcomputers and Business Software <sup>+</sup>	4
BUS 043B	Introduction to Microsoft Excel for Business Applications <sup>+</sup>	4

Total Major Units: **Credit Hours:** (0 Required) 22  
*+ Courses may be applied to Associate Degree General Education requirement*

General Education Requirements: **Credit Hours:** (0 Required) 19

Electives to meet 60 units: **Credit Hours:** (0 Required)

Total Units: **Credit Hours:** (60 Required) 60

**Total: 60**

# Laney College

## Manual Machining

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### Overview

College  
Originator  
Award Type

Laney - Career and Technical Education Division  
Adam Balogh  
LAN Certificate of Achievement

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### Description

The Laney College Manual Machining CA is a career education program which prepares students for work as a manual machinist. The certificate builds upon knowledge gained and skills developed in the Basic Manufacturing certificate. Students achieve competency in the operation of manual machine tools, such as mills, lathes and surface grinders. The coursework also includes a survey of welding processes.

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### Career Opportunities

machinist, manual machinist

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### Program Learning Outcomes

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

1. Demonstrate safe work procedures while operating manual machine tools and auxiliary shop equipment, as well as use of personal protective equipment and disposal of hazardous materials.
  2. Develop a foundation of skills for setup and operation of manual machine tools to manufacture complex parts which meet engineering specifications. This includes mills, lathes and surface grinders, as well as measuring tools.
  3. Demonstrate technical literacy in reading and writing technical documents, determining required specifications based on engineering drawings, and applying mathematics in problem solving.
- 

### Degree Requirements:

#### Core Courses (13 Units):

**Credit Hours:** (13 Required)

MACH 220	Machine Technology II	5
MACH 230	Machine Technology III	5
WELD 205	Introduction to Welding	3

**Total: 13**

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# Laney College

## Mathematics

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### Overview

College	Laney - Mathematics and Sciences Division
Originator	David Ross
Award Type	LAN A.S. Degree

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### Codes and Dates

State Approval Date	7/21/2021
Curriculum Committee Approval Date	10/30/2020
Board of Trustees Date	1/19/2021
Current Effective Date	8/01/2021
Program Control Number	35111
Top Code	1701.00 - Mathematics, General

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### Description

This associate degree is designed for students who complete the first two years of college math. It differs from our transfer degree in the IGETC or CSU Breadth Requirements. Students interested in this degree should consult with a counselor and the chair of the Mathematics Department. The degree will be awarded upon completion of the major course requirements listed below and the General Education requirements for the Associate in Science Degree.

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### Career Opportunities

Scientists, researchers, mathematics teachers, actuaries, and in general workers in fields that require mathematical knowledge together with a scientific, computing, or business background.

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### Program Learning Outcomes

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

1. Application Problems: Students should be able to read word problems, identify the type of problem, synthesize relevant information, create a mathematical relationship (equation) to determine unknown quantities and solve to determine the answer to the question posed.
  2. Solving Problems Algebraically: Students should be able to use algebraic manipulation to find solutions to problems/equations both with and without a calculator.
  3. Graphs: Students should be able to analyze, create and solve problems using graphs.
- 

### Degree Requirements:

<b>Degree Major Requirements (15 units):</b>	<b>Credit Hours:</b> (0 Required)
MATH 003A      Calculus I	5
MATH 003B      Calculus II	5
MATH 003C      Calculus III	5

<b>Select one from the following (3 units):</b> <i>(if you choose both, other courses are optional):</i>	<b>Credit Hours:</b> (0 Required)
MATH 003E      Linear Algebra	3
MATH 003F      Differential Equations	3

<b>Select one course from the following (4 units):</b> <i>if necessary to complete at least 21 units for the major:</i>	<b>Credit Hours:</b> (0 Required)
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MATH 013	Introduction to Statistics	4
MATH 011	Discrete Mathematics	4
MATH 118 or	Foundations in Data Science	4
CIS 118	Foundations in Data Science	4

**Credit Hours:** (0 Required)

Total Major Units: 22

**Credit Hours:** (0 Required)

General Education Requirement: 19

**Credit Hours:** (0 Required)

Electives to meet 60 units

**Total Units:** **Credit Hours:** (60 Required)

**Total: 60**

# Laney College

## Music

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### Overview

College	Laney - Liberal Arts Division
Originator	John Reager
Award Type	LAN A.A. Degree

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### Codes and Dates

State Approval Date	2/18/2021
Curriculum Committee Approval Date	10/16/2020
Board of Trustees Date	12/14/2020
Current Effective Date	1/01/2021
Program Control Number	01166
Top Code	1004.00 - Music

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### Description

Courses in the Music Department are designed to fulfill the needs of music majors, professional musicians, and those whose interest is vocational. Students are encouraged to contact the department chairperson for specific guidance when planning to transfer to a four-year institution in this major. For the latest information, visit: [www.laney.edu/music](http://www.laney.edu/music)

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### Career Opportunities

Academic and Performing Careers in Music and Music Related Fields such as: Arts Administration, Music Journalism, Recording Industry, Musical Instrument Sales and Repair, Private Instruction etc.

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### Program Learning Outcomes

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

1. Employ proper instrumental or vocal technique to construct properly prepared musical phrasing.
  2. Apply basic music theory and skills.
  3. Synthesize music skills ability, music theory knowledge, and instrumental or vocal technique into informed performances.
- 

### Degree Requirements:

<b>GROUP 1: Music Theory - (9 units):</b>	<b>Credit Hours:</b>	(0 Required)
MUSIC 101      Music Theory and Culture I		3
MUSIC 102      Music Theory and Culture II		3
MUSIC 103      Music Theory and Culture III		3
<b>GROUP 2: Music Skills - (3 units):</b>	<b>Credit Hours:</b>	(0 Required)
MUSIC 121      Music Skills I		1
MUSIC 122      Music Skills II		1
MUSIC 123      Music Skills III		1
<b>GROUP 3: List A - (4-6 units from the following):</b>	<b>Credit Hours:</b>	(0 Required)
MUSIC 008A      Music History: Antiquity Through the Renaissance		3
MUSIC 008B      Music History: The Baroque and Classical Eras		3

MUSIC 008C	Music History: The Romantic Era	3
MUSIC 008D	Music History: The Twentieth Century Through the Present	3
MUSIC 051A	Music History I: Antiquity to 1750	3
MUSIC 051B	Music History II: 1750 to Present	3
MUSIC 104	Music Theory and Culture IV	3
MUSIC 124	Music Skills IV	1

**GROUP 4: Ensemble - (4 units):**

**Credit Hours:** (0 Required)

*May include repeatable ensemble courses for a total of 4 units*

MUSIC 032	Chinese Orchestra	1
MUSIC 052A	Orchestra	1
MUSIC 125	Chorus	1
MUSIC 126	Jazz Orchestra	1
MUSIC 127	Jazz Combos	1
MUSIC 128	Choral Repertoire	1
MUSIC 129	Jazz Orchestra Repertoire	1
MUSIC 142	Instrumental Ensemble	1
MUSIC 144	Intermediate Jazz Combos	1
MUSIC 145	Advanced Jazz Combos	1
MUSIC 146	Advanced Choral Repertoire	1
MUSIC 151	Pop Music Ensemble	1

**GROUP 5: Applied Music - (4 units):**

**Credit Hours:** (0 Required)

*May include repeatable applied courses for a total of 4 units*

MUSIC 105	Classic Guitar I	1
MUSIC 106	Classic Guitar II	1
MUSIC 107	Classic Guitar III	1
MUSIC 108	Classic Guitar IV	1
MUSIC 117	Voice I	1
MUSIC 118	Voice II	1
MUSIC 119	Voice III	1
MUSIC 120	Voice IV	1
MUSIC 130	Elementary Piano Method I	1
MUSIC 131	Elementary Piano Method II	1
MUSIC 132	Elementary Piano Method III	1
MUSIC 133	Elementary Piano Method IV	1
MUSIC 134	Intermediate Piano Literature I	1
MUSIC 135	Intermediate Piano Literature II	1
MUSIC 136	Intermediate Piano Literature III	1
MUSIC 137	Intermediate Piano Literature IV	1
MUSIC 138	Jazz Piano I	1
MUSIC 139	Jazz Piano II	1
MUSIC 140	Jazz Piano III	1
MUSIC 141	Jazz Piano IV	1

MUSIC 150      Applied Music

1

**Total Major Units:**

**Credit Hours:** (0 Required)

Total Major Units:

24 - 26

**General Education Requirements:**

**Credit Hours:** (0 Required)

General Education Requirements:

19

**Credit Hours:** (0 Required)

Electives to meet 60 units

**Credit Hours:** (60 Required)

Total Units

60

**Total: 60**

# Laney College

## Music

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### Overview

College	Laney - Liberal Arts Division
Originator	John Reager
Award Type	LAN Certificate of Achievement

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### Codes and Dates

State Approval Date	2/18/2021
Curriculum Committee Approval Date	10/16/2020
Board of Trustees Date	12/14/2020
Current Effective Date	1/01/2021
Program Control Number	38118
Top Code	1004.00 - Music

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### Description

The Music Certificate of Achievement provides a foundation in music theory, music skills (musicianship), solo performance, and ensemble performance. These fundamental skills promote success in music careers and artistic endeavors. After completing this program, students will be able to play concerts, compose music, participate in recording sessions, or continue with their studies towards an associate degree.

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### Career Opportunities

Academic and Performing Careers in Music and Music Related Fields such as: Arts Administration, Music Journalism, Recording Industry, Musical Instrument Sales and Repair, Private Instruction etc.

---

### Program Learning Outcomes

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

1. Synthesize knowledge of performance skills, theory, and music history into an informed performance of music.
  2. Demonstrate musicianship skills
  3. Apply basic music theory to music works and performances.
- 

### Degree Requirements:

<b>Group 1: Music Theory-All of the following (9 units):</b>	<b>Credit Hours:</b> (9 Required)
MUSIC 101      Music Theory and Culture I	3
MUSIC 102      Music Theory and Culture II	3
MUSIC 103      Music Theory and Culture III	3
<b>Group 2: Musicianship (Music Skills) – All of the following (3 units):</b>	<b>Credit Hours:</b> (3 Required)
MUSIC 121      Music Skills I	1
MUSIC 122      Music Skills II	1
MUSIC 123      Music Skills III	1
<b>Group 3: List A (4-6 Units from the following):</b>	<b>Credit Hours:</b> (4 - 6 Required)
MUSIC 008A      Music History: Antiquity Through the Renaissance	3
MUSIC 008B      Music History: The Baroque and Classical Eras	3
MUSIC 008C      Music History: The Romantic Era	3

MUSIC 008D	Music History: The Twentieth Century Through the Present	3
MUSIC 051A	Music History I: Antiquity to 1750	3
MUSIC 051B	Music History II: 1750 to Present	3
MUSIC 104	Music Theory and Culture IV	3
MUSIC 124	Music Skills IV	1

**Group 4: Performance Ensemble – Select a minimum of 4 units from the following (4 units) (4 Required)**

*May include repeatable ensemble courses for a total of 4 units*

MUSIC 032	Chinese Orchestra	1
MUSIC 052A	Orchestra	1
MUSIC 125	Chorus	1
MUSIC 126	Jazz Orchestra	1
MUSIC 127	Jazz Combos	1
MUSIC 128	Choral Repertoire	1
MUSIC 129	Jazz Orchestra Repertoire	1
MUSIC 142	Instrumental Ensemble	1
MUSIC 144	Intermediate Jazz Combos	1
MUSIC 145	Advanced Jazz Combos	1
MUSIC 146	Advanced Choral Repertoire	1
MUSIC 151	Pop Music Ensemble	1

**Group 5: Applied Music – Select a minimum of 4 units from the following (4 units) (4 Required)**

*May include repeatable courses for a total of 4 units*

MUSIC 105	Classic Guitar I	1
MUSIC 106	Classic Guitar II	1
MUSIC 107	Classic Guitar III	1
MUSIC 108	Classic Guitar IV	1
MUSIC 117	Voice I	1
MUSIC 118	Voice II	1
MUSIC 119	Voice III	1
MUSIC 120	Voice IV	1
MUSIC 130	Elementary Piano Method I	1
MUSIC 131	Elementary Piano Method II	1
MUSIC 132	Elementary Piano Method III	1
MUSIC 133	Elementary Piano Method IV	1
MUSIC 134	Intermediate Piano Literature I	1
MUSIC 135	Intermediate Piano Literature II	1
MUSIC 136	Intermediate Piano Literature III	1
MUSIC 137	Intermediate Piano Literature IV	1
MUSIC 138	Jazz Piano I	1
MUSIC 139	Jazz Piano II	1
MUSIC 140	Jazz Piano III	1
MUSIC 141	Jazz Piano IV	1
MUSIC 150	Applied Music	1

**Total: 24.000 - 26.000**

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# Merritt College

## Natural History and Resources

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### Overview

College	Merritt - Division II
Originator	Benjamin Nelson
Award Type	MC Certificate of Achievement

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### Codes and Dates

Current Effective Date	1/01/2023
Program Control Number	38649
Top Code	0115.00* - Natural Resources

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### Description

The Natural History and Resources Certificate of Achievement educates students on the biodiversity of the Bay Area and beyond and how that biodiversity interacts with humans in different ecosystems and scales. Coursework provides a foundation on local flora, fauna, and geology, as well as an ecosystem-driven approach to explore natural resources such as water, forests, and ecosystem services. Graduates of the program can expect to be prepared for entry-level employment in the field of natural resources and the environment.

Students in the Natural History and Resources program will:

- Discover the vast diversity of animals, plants, fungi, and microscopic organisms through courses in botany, ornithology, entomology, herpetology, and more.
  - Learn the principles of biogeography and the interplay between biology and geology.
  - Participate in field trips and field courses around the Bay Area and beyond.
  - Prepare for the following careers: Environmental educator, environmental consultant, habitat restoration technician, parks maintenance technician, ranger, biologist, curatorial assistant, or collections manager.
- 

### Career Opportunities

Career opportunities may include: Biological scientists and technicians, conservation scientists and technicians, environmental science and protection technicians, environmental scientists and specialists, fish and game wardens, forest and conservation technicians and workers, foresters, geographers, hydrologists, museum conservators and technicians, natural science managers, soil and plant scientists, and zoologists and wildlife biologists.

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### Program Learning Outcomes

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

1. Provide an overview of the form and function of local biodiversity (flora and fauna) and understand the ecological roles of these organisms.
  2. Demonstrate an understanding of the various ecosystems and natural resources in the Bay Area and their importance.
  3. Demonstrate practical skills, such as species identification, field documentation, and environmental impact report preparation, used by professionals in the field.
- 

### Degree Requirements:

Major Core Courses		Credit Hours:	(15 Required)
BIOL 029	Introduction to Biodiversity		4
ENVMT 001	Environmental Careers		1
ENVMT 002	Introduction to Sustainable Environmental Systems		4

ENVMT 012 or	Environmental Racism and Justice	3
AFRAM 038 or	Environmental Racism and Justice	3
GEOG 001	Physical Geography	3

**Major Elective Courses****Credit Hours:** (9 Required)*Select any combination of courses for a minimum of 9 units.*

ART 166	Beginning Botanical Drawing	2
BIOL 005	Botany	4
BIOL 009	Marine Biology	4
BIOL 015	Environmental Biology	3
GEOG 001	Introduction to Physical Geology	4
GEOG 012	Environmental Geology	3
LANHT 002	Plant Materials: Tree ID and Culture with Lab (Day)	3
LANHT 002E	Plant Materials: Tree ID and Culture (Evening)	3
LANHT 005A	Plant Materials: Fall Native Plant ID and Culture with Lab (Day)	3
LANHT 005B	Plant Materials: Spring Native Plant ID and Culture with Lab (Day)	3
LANHT 005EA	Plant Materials: Fall Native Plant ID and Culture (Evening)	3
LANHT 005EB	Plant Materials: Spring Native Plant ID and Culture (Evening)	3
LANHT 010	Insect Pests	3
LANHT 016	Soil Management	3
LANHT 023	Plant Terminology	2.5
NATAM 076E	California Indian Ecology on the Central Coast	1.5
ENVMT 060A	Natural History of the Bay Area: The Local Parks	0.5 - 3
ENVMT 060B	Natural History of the Bay Area: Mt. Diablo State Park	0.5 - 3
ENVMT 060C	Natural History of the Bay Area: Herpetology	0.5 - 2
ENVMT 060E	Natural History of the Bay Area: Biogeography	0.5 - 2
ENVMT 061E	Natural History of the Tide Pools of the Greater Bay Area	0.5 - 2
ENVMT 061H	Natural History of the Bay Area: Butterflies and Moths	0.5 - 2
ENVMT 061I	Natural History of the Bay Area: Bryophytes	0.5 - 2
ENVMT 061K	Natural History of the Bay Area: Lichens	0.5 - 2
ENVMT 062S	Natural History of the Islands of California	0.5 - 2
ENVMT 080A	Raptors of Central California and the Bay Area	0.5 - 2
ENVMT 080B	Bird Singing: The Ecology of Bird Songs and Identification by Ear	0.5 - 2
ENVMT 080C	Fundamentals of Ornithology and Birding in Central California/Bay Area	0.5 - 2

**Interdisciplinary Elective Courses****Credit Hours:** (2 Required)*Select any combination of courses for a minimum of 2 units.*

ENVMT 005	Bay Area Food Culture	3
ENVMT 008	Introduction to Outdoor Education	3
ENVMT 014	Environmental Impact Reports	2
ENVMT 035	Introduction to Urban Agroecology	3
ENVMT 039C	Geographical Information Systems Applications	4
ENVMT 044	Introduction to Creek and Watershed Restoration: General Aspects	3
ENVMT 055	Principles of Conservation and Land Management	3

ENVMT 056	Management of Public Parks and Natural Resources	3
ENVMT 057	Park Operations Practices and Skills	4
ENVMT 476F	Occupational Work Experience in Environmental Management	1 - 4
GEOLOGY 021	Bay Area Field Studies	1 - 2
LANHT 053	Alpines Lab	1
LANHT 081	Arborist Equipment Fundamentals	2

**Total: 26**

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# Laney College

## Refrigeration Technology

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### Overview

College  
Originator  
Award Type

Laney - Career and Technical Education Division  
Sappho Su  
LAN Certificate of Achievement

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### Description

Refrigeration Technology is a certificate offering the theoretical, technical, and problem-solving skills essential for employment in the air conditioning and refrigeration industries. Students completing the suggested curriculum can seek employment as air conditioning installers, refrigeration technicians, and building engineers.

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### Career Opportunities

building engineer, warehouse specialist, opportunities at the Port area.

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### Program Learning Outcomes

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

1. Safe use of materials: Demonstrate proper and safe use of chemicals, combustible materials, electricity, high-pressure gases, climbing ladders and lifting heavy objects.
  2. Explain concepts related to refrigeration: Explain the theory of Refrigeration and Air Conditioning and the physical properties of components and devices.
  3. Demonstrate critical thinking, interpersonal, writing, and reading skills working with team members and customers.
- 

### Degree Requirements:

#### Core Courses

**Credit Hours:** (16.5 Required)

E/ET 202	Fundamentals of Electricity for ECT	2
ECT 013	Fundamentals of Refrigeration	4
ECT 211	Mechanical and Electrical Codes	1.5
ECT 214	Technical Mathematics for ECT	3
ECT 012	Blueprint Reading and Interpretation for ECT	1.5
ECT 015	Advanced Refrigeration & Troubleshooting	3
WELD 215	Welding for ECT Technicians	1.5

**Total: 16.5**

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# Laney College

## Refrigeration Technology

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### Overview

College  
Originator  
Award Type

Laney - Career and Technical Education Division  
Sappho Su  
LAN Certificate of Proficiency

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### Program Learning Outcomes

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

1. Safe use of materials Demonstrate proper and safe use of chemicals, combustible materials, electricity, high-pressure gases, climbing ladders and lifting heavy objects.
  2. Explain concepts related to refrigeration Explain the theory of Refrigeration and Air Conditioning and the physical properties of components and devices.
  3. Team work Demonstrate critical thinking, interpersonal, writing, and reading skills working with team members and customers.
- 

### Degree Requirements:

#### Certificate of Proficiency Requirements:

**Credit Hours:** (16.5 Required)

E/ET 202 Fundamentals of Electricity for ECT	2
ECT 11 Mechanical and Electrical Devices	2
ECT 13 Fundamentals of Refrigeration	4
ECT 14 Advanced Refrigeration	2
ECT 15 Refrigeration Equipment Trouble-shooting	2
ECT 211 Mechanical and Electrical Codes	1.5
ECT 214 Technical Mathematics for ECT	3

**Total: 16.5**

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# Laney College

## Residential And Light Commercial HVAC & R

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### Overview

College	Laney - Career and Technical Education Division
Originator	Sappho Su
Award Type	LAN A.S. Degree

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### Description

The Associate of Science for Residential and Light Commercial HVAC & R prepare students to install, service, operate, and maintain HVACR systems in the residential and light commercial settings. Environmental Control Technology (ECT) is a technical program offering the theoretical, technical, and problem-solving skills essential for employment in the heating, ventilation, air conditioning, and refrigeration industry. Graduates can seek employment as HVACR technicians in the construction or service divisions.

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### Career Opportunities

Graduates can seek employment as HVACR technicians or installers in the construction or service divisions.

---

### Program Learning Outcomes

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

1. Explain the theories for refrigeration, air conditioning, and system components effectively in technical language.
  2. Demonstrate proper and safe use of chemicals, combustible materials, electricity, high-pressure gases, climbing ladders and lifting heavy objects.
  3. Demonstrate critical thinking, interpersonal, writing, and reading skills working with team members and customers.
- 

### Degree Requirements:

<b>First Semester (10 units):</b>	<b>Credit Hours:</b>	(0 Required)
ECT 012      Blueprint Reading and Interpretation for ECT		1.5
ECT 013      Fundamentals of Refrigeration		4
ECT 211      Mechanical and Electrical Codes		1.5
ECT 214      Technical Mathematics for ECT		3
<b>Second Semester (7.5 units):</b>	<b>Credit Hours:</b>	(0 Required)
E/ET 202      Fundamentals of Electricity for ECT		2
ECT 017      Fundamentals of HVAC and Troubleshooting		3
ECT 018      HVAC Installation Practices		1
WELD 215      Welding for ECT Technicians		1.5
<b>Third Semester (11 units):</b>	<b>Credit Hours:</b>	(0 Required)
ECT 015      Advanced Refrigeration & Troubleshooting		3
ECT 028      Energy Management and Efficiency in Building Systems		2
ECT 021      Introduction to Direct Digital Controls		3

E/ET 221          Motors and Drives

3

Total Major Units:

**Credit Hours:** (0 Required)  
28.5

General Education Requirements:

**Credit Hours:** (0 Required)  
19

Electives to meet 60 units:

**Credit Hours:** (0 Required)

Total Units:

**Credit Hours:** (60 Required)  
60

**Total: 60**

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# Laney College

## Residential And Light Commercial HVAC & R

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### Overview

College	Laney - Career and Technical Education Division
Originator	Sappho Su
Award Type	LAN Certificate of Achievement

---

### Description

The Certificate of Achievement for Residential and Light Commercial HVAC & R prepare students to install, service, operate, and maintain HVACR systems in the residential and light commercial settings. Environmental Control Technology (ECT) is a technical program offering the theoretical, technical, and problem-solving skills essential for employment in the heating, ventilation, air conditioning, and refrigeration industry. Graduates can seek employment as HVACR technicians in the construction or service divisions.

---

### Career Opportunities

HVACR technicians, installers in the construction or service divisions.

---

### Program Learning Outcomes

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

1. Demonstrate proper and safe use of chemicals, combustible materials, electricity, high-pressure gases, climbing ladders and lifting heavy objects.
  2. Explain the theories for refrigeration, air conditioning, and system components effectively in technical language.
  3. Demonstrate critical thinking, interpersonal, writing, and reading skills working with team members and customers.
- 

### Degree Requirements:

<b>First Semester (10 units):</b>	<b>Credit Hours:</b>	(10 Required)
ECT 013	Fundamentals of Refrigeration	4
ECT 214	Technical Mathematics for ECT	3
ECT 012	Blueprint Reading and Interpretation for ECT	1.5
ECT 211	Mechanical and Electrical Codes	1.5
<b>Second Semester (7.5 units):</b>	<b>Credit Hours:</b>	(7.5 Required)
ECT 017	Fundamentals of HVAC and Troubleshooting	3
ECT 018	HVAC Installation Practices	1
E/ET 202	Fundamentals of Electricity for ECT	2
WELD 215	Welding for ECT Technicians	1.5

**Total: 17.5**

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# Laney College

## Spanish for Bilingual / Heritage Students

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### Overview

College	Laney - Liberal Arts Division
Originator	Arturo Davila-Sanchez
Award Type	LAN Certificate of Achievement

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### Description

The Certificate of Achievement in Spanish for Bilingual / Heritage Students will empower them in their own language and help them to use it in different instances and get jobs that require a high knowledge of Spanish. This certificate will allow students to follow their studies in careers such as Bilingual Counselor, Bilingual teacher, Education, Medical Interpretation and Translation, Legal Interpretation and Translation, Journalism, or to fulfill some requirements to obtain a major or minor in Spanish language and literature in a 4-year college,

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### Career Opportunities

Major of Minor in Spanish at a 4-year college. Medical Interpretation and Translation Legal Interpretation and Translation Bilingual counseling careers and jobs

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### Program Learning Outcomes

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

1. Demonstrate oral competence in the Spanish Language: correctly apply grammar and use an advanced level of vocabulary in the Spanish language.
  2. Demonstrate written competence in the Spanish Language: correctly apply grammar and use an advanced level of vocabulary in the Spanish language.
  3. Describe, analyze and interpret literary, historical, and cultural texts, films, documentaries, and videos to better understand the identity of Latinx peoples in and outside United States.
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### Degree Requirements:

<b>Core Courses (10 units):</b>	<b>Credit Hours:</b> (10 Required)
SPAN 022A Spanish for Bilingual Speakers I	5
SPAN 022B Spanish for Bilingual Speakers II	5
<b>Elective Courses (6-10 units):</b> (Select from the following)	<b>Credit Hours:</b> (6 - 10 Required)
COUN 024 College Success	3
COUN 057 Career and Life Planning	3
LCI 201 Introduction to Translation and Interpretation – Spanish	4
M/LAT 030A Survey of Latin-American Films	3
M/LAT 033 Introduction to Chicana/o and Latina/o Studies	3
M/LAT 034 History of Latinos in the United States: 1800 to Present	3
MUSIC 053A Music of Latin America and the Caribbean	3
MUSIC 117 Voice I	1

SPAN 033A	Beginning Conversational Nuaatl	3
SPAN 036A	Introduction to Aztec-Mexica Culture and Nuaatl Language I	5
SPAN 053A	Beginning Mam Language and Culture	5

**Total: 16.000 - 20.000**

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# Laney College

## Studio Arts

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### Overview

College	Laney - Liberal Arts Division
Originator	Anna Vaughan
Award Type	LAN AA-T Degree

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### Codes and Dates

State Approval Date	10/29/2014
Curriculum Committee Approval Date	3/15/2013
Board of Trustees Date	4/23/2013
Program Control Number	32984
Top Code	1002.00 - Art

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### Description

The Associate in Arts in Studio Arts for Transfer Degree, (AA-T Studio Arts) is designed to prepare students for a seamless transfer with junior status and priority admission to their local CSU campus to a program or major in Studio Arts or similar major for completion of a baccalaureate degree.

Students are required to complete:

- Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University, including both of the following:
  - (A) The Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements.
  - (B) A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.
- Obtainment of a minimum grade point average of 2.0. Students must earn a C (or "P") or better for each course in the major or area of emphasis.
- No more than 60 semester units are required.

The Associate in Arts in Studio Arts for Transfer Degree, (AA-T Studio Arts) will also assist Studio Arts major students to transfer to a U.C. or other baccalaureate institutions. Students are advised to consult with a counselor to verify transfer requirements.

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### Career Opportunities

This program prepares students to transfer to Art majors in four-year institutions, leading to careers in teaching or private sector employment.

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### Program Learning Outcomes

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

1. Write a visual analysis/ critique of their own and others' art on both form and content, and its relation to a historical and global context.
2. Produce artworks in various media reflecting an understanding of line, shape, value, texture, space, color, scale, proportion, balance, mood, movement, mass, and emphasis.

3. Assemble a portfolio of strong drawings, painting, sculpture, or digital media that demonstrate skill and understanding of techniques in various media

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## Degree Requirements:

<b>Core Curriculum (12 units)</b>	<b>Credit Hours:</b> (0 Required)
ART 003          History of Western Art: Renaissance to Contemporary Art	3
ART 020          Beginning Drawing & Composition	3
ART 046          2-D Visual Design	3
ART 047          3-D Visual Design	3
<b>Art History: Select one course (3 units)</b>	<b>Credit Hours:</b> (0 Required)
ART 002          History of Western Art: Prehistoric Through the Middle Ages	3
ART 005          History of Asian Art (Past to Present)	3
ART 004          History of Modern Art (1800 to Present)	3
<b>Studio Art: Select three courses (9 units)</b>	<b>Credit Hours:</b> (0 Required)
ART 137 or      Beginning Figure Drawing and Composition	3
ART 022          Intermediate Drawing and Composition	3
ART 040          Color Dynamics: The Interaction of Color	3
ART 050          Beginning Painting	3
ART 080          Beginning Ceramics	3
ART 100          Beginning Printmaking	3
ART 165          Beginning Figure Sculpture	3
ART 176          Beginning Sculpture	3
<b>Total Major Units: 24</b>	<b>Credit Hours:</b>
<b>CSU and IGTEC requirements</b> 37 - 39	<b>Credit Hours:</b> (0 Required)
<b>Total Units</b>	<b>Credit Hours:</b> (60 Required)
	<b>Total: 60</b>

# Berkeley City College

## Social Work and Human Services

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### Overview

College	BCC - Liberal Arts and Social Sciences
Originator	Christina Tam
Award Type	BCC AA-T Degree

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### Codes and Dates

State Approval Date	8/16/2022
Curriculum Committee Approval Date	11/17/2022
Board of Trustees Date	6/14/2022
Current Effective Date	1/01/2023
Program Control Number	42381
Top Code	2104.00* - Human Services

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### Description

The Associate in Arts in Social Work and Human Services for Transfer Degree is designed for students who plan to transfer to a four-year institution as Social Work and Human Services majors. In this program, the students gain exposure to the field of social and human service work.

Students who successfully complete the AA-T in Social Work and Human Services earn specific guarantees for transfer to the CSU system: admission to a CSU with junior status and priority admission to a local CSU campus and to a program or major in Social Work and Human Service or a similar major. Students transferring to a CSU campus will be required to complete no more than 60 units after transfer to earn a bachelor's degree.

Students are required to complete 60 semester units that are eligible for transfer to a California State University, including both of the following: (1) The Inter-segmental General Education Transfer Curriculum (IGETC) or the California State University General Education – Breadth Requirements and (2) 28-29 semester units with a grade of C or P or better in the major and an overall minimum grade point average (GPA) of at least 2.0 in all CSU transferable coursework. For a more detailed description of Associate Degrees for Transfer, see “Associate Degrees for Transfer (ADT) to a California State University”.

Students are advised to consult with a Berkeley City College Counselor and/or the Social Sciences Department Chair for additional information and to verify transfer requirements.

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### Career Opportunities

Adoption Social Worker, Case Manager, Case Worker, Child Protective Services Social Worker (CPS Social Worker), Family Protection Specialist, Family Resource Coordinator, Family Service Worker, Foster Care Social Worker, School Social Worker, Youth Services Specialist, Case Manager, Clinical Social Worker, Clinical Therapist, Clinician, Counselor, Licensed Clinical Social Worker (LCSW), Mental Health Therapist, Social Worker, Substance Abuse Counselor, Therapist, Clinical Social Worker, Hospice Social Worker, LMSW (Licensed Master Social Worker), Medical Social Worker, Nephrology Social Worker, Oncology Social Worker, Psychosocial Coordinator, Renal Social Worker, Social Work Case Manager, Social Worker

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### Program Learning Outcomes

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

1. Students will develop an understanding of the historical context of social work.
  2. Students will learn how to apply critical analysis in assessing client needs.
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### Degree Requirements:

**Required Courses: 22-23 units**

**Credit Hours: (0 Required)**

HUSV 121 and	Introduction to Social Work and Human Services	3
HUSV 120A and	Social Work and Human Services Seminar	1
HUSV 120B and	Social Work and Human Services Fieldwork	2
MATH 013 and	Introduction to Statistics	4
SOC 001 and	Introduction to Sociology	3
PSYCH 001A and	Introduction to General Psychology	3
BIOL 010 or	Introduction to Biology	4
BIOL 025 and	Human Biology	3
ECON 001 or	Principles of Economics (Macro-Economics)	3
ECON 002	Principles of Economics (Micro-Economics)	3

**Select two courses from the following (6 units)**

**Credit Hours:** (0 Required)

COMM 006 or	Intercultural Communication	3
SOC 002 or	Social Problems	3
SOC 005 or	Minority Groups	3
ANTHR 003 or	Introduction to Social and Cultural Anthropology	3
CHDEV 051 or	Child Growth and Development	3
ENGL 005 or	Critical Thinking in Reading and Writing	3
HIST 007A or	History of the United States to 1877	3
HIST 007B or	History of the United States Since 1865	3
PSYCH 021	Lifespan Human Development	3

**Major Requirements: 28-29 units**

**Credit Hours:**

**General Education (IGETC or CSU GE) and Electives less double counting: 34-32 units** **Credit Hours:** (0 Required)

**Total Units: 60**

**Credit Hours:**

# Berkeley City College

## Virtual Production Fundamentals

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### Overview

College	BCC - Business/STEM/Media Art
Originator	Mary Clarke-Miller
Award Type	BCC Certificate of Achievement

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### Codes and Dates

Curriculum Committee Approval Date	11/17/2022
Top Code	0699.00* - Other Media and Communications

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### Description

The Virtual Production Fundamentals Certificate of Achievement, offered as a part of the Regional Virtual Production Academy (RPVA) collaborative, prepares students for entry-level careers in virtual production. Students will apply the skills from film production, computer graphics, digital imaging, visual effects and game engines to the virtual production process. Students may select courses from the participating colleges to complete the certificate.

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### Career Opportunities

Epic Games, the owner of Unreal Engine, the leading technology in Virtual Production, has gone as far as commissioning their own labor market reports by Burning Glass Technologies. Burning Glass, in partnership with Epic Games, published reports in both 2019 and 2021 validating the growing demand for 3D and real-time 3D skills. In 2019 their report on the US job market found that the use of real-time rendering 3D software has experienced tremendous growth with the demand for talent increasing 601% faster than the overall job market. Upon mining their database of nearly a billion historical and current job postings, Burning Glass found that the demand for Unreal Engine skills is growing faster than any other segment in real-time 3D, and those jobs are paying the highest salary premiums in all of 3D graphics. Demand for certain 3D graphics and real-time 3D skills is rising in career areas that had not previously registered demand for these skills.. These digital skills are driving growth in these sectors and creating new types of hybrid 3D modeling occupations— fashion designers, civil engineers, interior designers, and city planners are all using 3D graphics and real-time skills in new and exciting ways. The tools and skills related to real-time 3D are driving hybridization of some careers, when a skill previously found in one group of occupations spreads to a different set of occupations.

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### Program Learning Outcomes

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

1. Analyze, describe, and apply the fundamental technology requirements of the virtual production workflow
  2. Demonstrate proficiency with game engines, 3D computer graphics, visual effects, and film production.
  3. Demonstrate the ability to work on a production team and take responsibility for one's role
  4. Create a project using the virtual production process
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### Degree Requirements:

Required courses	Credit Hours:	(19 Required)
MMART 003	Introduction to Digital Art	3
MM/AN 020A	Introduction to 3D Animation	3
MM/AN 022B	Special Effects for Animation	3
MM/AN 040A	Introduction to Game Design	3
MM/VI 009A	Video Production I: Introduction to Video	4

MEDIA 044A Virtual Production 3 units (Laney College Course)

**Select 1-3 units**

**Credit Hours:** (1 - 3 Required)

MMART 005A	Introduction to Motion Graphics	3
MMART 468	Occupational Work Experience in Multimedia Arts	1 - 3
MM/AN 001A	Drawing for Animation	3
MM/AN 021A	Introduction to 3D Modeling	3
MM/VI 020A and	Editing I: Introduction to Video Editing	2
MM/VI 020LA	Editing I: Introduction to Video Editing Lab	1

**Total: 20.000 - 22.000**

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