

IRAO OFFICE USE ONLY	
Received	4/20/17
In Banner	
MTVCOMP/Codeset	
Master Curriculum	
CIP Code	15.0406
Program Code	
Program Description	

University of Hawai'i  
Code Request Form for Academic Programs for

**Reset Form**

# NEW OR MODIFY PROGRAM CODE

**New Program Code**       **Modify Program Code**

Date: March 20, 2017

## REQUESTOR CONTACT INFORMATION

Name Jennie Thompson Campus Leeward CC  
 Title Division Chair Email jenniet@hawaii.edu  
 Office/Dept Math and Sciences Division Phone 455-0252

## NEW PROGRAM CODE TO CREATE

Institution LEE - Leeward CC Campus LEE - Leeward CC  
 Level UG - Undergraduate Effective Term Fall 2017

	Code (Max. Characters)	Description	Check if requesting new code:
College	(2) <u>IN</u>	<u>Instructional</u>	<input type="checkbox"/> See Banner form STVCOLL
Department	(4) <u>MS</u>	<u>Math and Sciences</u>	<input type="checkbox"/> See Banner form STVDEPT
Degree/Certificate	(6) <u>CA</u>	<u>Certificate of Achievement</u>	<input type="checkbox"/> See Banner form STVDEGC
Major	(4) <u>IIT</u>	<u>Integrated Industrial Tech</u>	<input checked="" type="checkbox"/> See Banner form STVMAJR
Concentration	(4) _____	_____	<input type="checkbox"/> See Banner form STVMAJR
Minor	(4) _____	_____	<input type="checkbox"/> See Banner form STVMAJR

If a similar major/concentration code exists in Banner, please list the code: \_\_\_\_\_

Justification to warrant a new major/concentration code similar to an existing major/concentration code:

New program Certificate of Achievement for the Integrated Industrial Technology where no code exists for this type of program.

Is this major/concentration code being used the same way at the other UH campuses?  Yes  No

Should this program be available for applicants to select as their planned course of study on the online application? *If yes, student may select the code as their only program of study.*  Yes  No

### RULES PERTAINING TO FINANCIAL AID AND 150% DIRECT SUBSIDIZED LOAN LIMIT LEGISLATION

Is 50% or greater of the classes in this program offered at a location other than the Home Campus?  Yes  No

Is this program/major/certificate financial aid eligible?  Yes  No

Does this certificate qualify as a Gainful Employment Program (Title IV-eligible certificate program)?  Yes  No

See <http://www.ifop.ed.gov/GainfulEmploymentInfo/index.html>

### Program Length

*In academic years, decimals are acceptable. The length of the program should match what is published by the campus in any online and/or written publication.*

One Academic Year 30.0000W

### Special Program Designations

See *Special Program Designations Code Definitions on IRAO Program Code Request webpage*

A     B     N     P     T     U

Required Terms of Enrollment:  Fall     Spring     Summer     Extended

ADDITIONAL COMMENTS

ATTACHMENTS

**BOR Approved:** Associate, Bachelor and Graduate Degrees, and sole credential certificates

- BOR Meeting Minutes & Supporting Documents                       Curriculum

**Chancellor Approved:** Certificates related to authorized BOR program & Associate in Technical Studies (ATS) Degree

- Memo from Chancellor to notify VPAA about new program                       Curriculum

For new certificates approved by the Chancellor, the related BOR authorized academic program is:

VERIFICATIONS

*By signing below, I verify that I have reviewed and confirm the above information that is pertinent to my position.*


**Registrar:**

Grant Helgeson                                            3/22/17  
Print Name                                      Signature                                      Date

**Financial Aid Officer:**

Gregg Yoshimura                                            3/22/2017  
Print Name                                      Signature                                      Date

**For Community Colleges, verification of consultation with OVPCC Academic Affairs:**

Suzette Robinson                                            4/17/17  
Print Name                                      Signature                                      Date



April 3, 2017

**MEMORANDUM**

TO: Risa Dickson  
Vice President for Academic Affairs

VIA: *for Della Teraoka* *Ron Umehira*  
Interim Vice Chancellor for Academic Affairs

FROM: Manuel J. Cabral  
Chancellor

A large, handwritten signature in black ink, appearing to read "Manuel J. Cabral".

SUBJECT: Curriculum Approval

I have approved the following New Programs on 3/23/17. These are effective Fall 2017. The approvals can be found at: <https://leeward.kuali.co/cm>

**New**

Advanced Professional Certificate – Special Education Mild/Moderate PK-12  
Associate in Science (AS) – Integrated Industrial Technology  
Certificate of Achievement (CA) - Integrated Industrial Technology  
Certificate of Competence (CO) – Integrated Industrial Technology

c Division Chairs  
James Goodman  
Ron Umehira  
Adam Halemano  
Janel Oshiro  
Candy Hochstein  
Blake Hunrick  
James Fujita  
Pearl Imada-Iboshi



UNIVERSITY of HAWAII  
**LEeward**  
COMMUNITY COLLEGE

Office of the Vice Chancellor for Academic Affairs

March 31, 2017

TO: Manuel J. Cabral  
Chancellor

FROM: Della Teraoka *Della Teraoka*  
Interim Vice Chancellor for Academic Affairs

SUBJECT: Signing Authority

I will be out of the office from April 3-7, 2017. I will be attending the 2017 ACCJC Conference in Irvine, California.

During my absence, Ron Umehira, Dean of Career and Technical Education, will have signing authority on all Academic Affairs matters.

cc: Administrators  
Business Office  
Human Resources Office

96-045 Ala 'Ike  
Pearl City, Hawai'i 96782  
Telephone: (808) 455-0453  
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An Equal Opportunity/Affirmative Action Institution

# Program Code | Integrated Industrial Technology

Current | Fall 2017 – Indefinite

## 1) GENERAL INFORMATION

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### 1.1) Program Title

Integrated Industrial Technology

### 1.2) Degree Type

Certificate of Achievement (CA)

### 1.3) Description

The Certificate of Achievement in Integrated Industrial Technology (CA-IIT) program is intended to provide students with entry-level skills in hydraulic, pneumatic, and mechanical drive systems, as well as apply principles of process quality assurance in an automated controls environment to meet the workforce needs of an emerging industrial technology industry. Students will be able to perform inspection, preventative maintenance, and corrective maintenance while applying proper safety, health, and personal protection procedures. Students will also gain experience in computer-aided design (CAD) to create drawings of parts and assemblies for prototypes.

### 1.4) Department

Math & Science

## 2) PROGRAM LEARNING OUTCOMES

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### 2.1) Outcomes

Use appropriate safety, health, and personal protection procedures applicable to an industrial working environment.

Utilize proper procedures for inspection, preventive maintenance, and corrective maintenance of integrated industrial systems.

Demonstrate an understanding of the theory, construction, installation and operation of hydraulic and pneumatic systems in an automated controls environment.

Demonstrate an understanding of mechanical drive systems, their function and the operation in an automated controls environment.

Apply principles of process quality assurance to an automated control environment.

Use CAD/CAM to create drawings of parts and assemblies to create prototypes using additive manufacturing.

## 3) BOR INFORMATION

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### 3.1) Program Justification

The new CA in IIT aligns with the 2015 – 2021 UH Strategic Directions with respect to the Hawaii Graduation Initiative Action Strategy 3 - anticipate and align curricula with community and workforce needs. The proposed IIT curriculum was developed with input from various experts in manufacturing, automation, and transit systems.

The IIT Program aligns with the 2015 – 2021 UHCC Strategic Directions in regards to the Hawaii Innovation Initiative by developing and offering mid-level technician training in STEM related jobs.

The IIT Program also aligns with the 2015 – 2021 Leeward CC Strategic Directions in regards to the Hawaii Innovation Initiative by developing and delivering programs and training needed for a qualified workforce in existing and emerging careers. The following are objectives that the IIT Program will address.

1. Increase access to STEM programs and provide distance and hybrid opportunities in STEM education.
2. Create specific pathways into baccalaureate programs in data science and cybersecurity, biotechnology, engineering, physical sciences, and other demand fields using meta majors.
3. Increase credit and non-credit programs to prepare students for high-wage, high-demand jobs.
4. Identify new programs and opportunities that align with the community needs and workforce demands.

A key aspect in the development of a technical workforce that is properly educated in emerging technologies is for community colleges and employers to work together to identify skill gaps in existing technical education programs.

### 3.2) Program Mission and Objectives

The Certificate of Achievement in Integrated Industrial Technology (CA-IIT) program is intended to provide students with entry-level skills in hydraulic, pneumatic, and mechanical drive systems, as well as apply principles of process quality assurance in an automated controls environment to meet the workforce needs of an emerging industrial technology industry. Students will be able to perform inspection, preventative maintenance, and corrective maintenance while applying proper safety, health, and personal protection procedures. Students will also gain experience in computer-aided design (CAD) to create drawings of parts and assemblies for prototypes.

### 3.3) Program Curriculum Plan

This certificate contains these courses:

First semester requirements (15 credits)

- IIT 101 Safety, Health, and Environment (3)
- IIT 121 Electro-hydraulics and Pneumatics (3)

- IIT 131 Mechanical Drive Systems (3)
- ENG 100 Composition I (3)
- MATH 103 College Algebra or higher in STEM track (3)

#### Second semester requirements (16 credits)

- IIT 151 Rapid Prototyping (3)
- IIT 171 Principles of Process Quality (3)
- ICS 141 Discrete Math for Computer Science I (3)
- PHYS 100 Survey Of Physics (3)
- PHYS 100L Survey of Physics Laboratory (1)
- Social Sciences (100 Level & Above) (3)

This certificate will use the same admission, advising, and counseling resources as the AS in IIT program. To earn the certificate, a minimum of a "C" grade in each of the courses is required.

### 3.4) Program Rules

## Semester 1

- Completed the following:
  - NEW 101 - Industrial Safety Health and Environment
  - NEW 131 - Mechanical Drive Systems
  - NEW 121 - Electro Hydraulics and Pneumatics (Fluid Power Systems)
  - ENG 100 - Composition I
- And any of the following
  - Completed the following:
    - MATH 103 - College Algebra
  - higher in STEM track.

## Semester 2

- Completed the following:
  - NEW 171 - Principles of Process Quality
  - NEW 151 - Rapid Prototyping
  - ICS 141 - Discrete Mathematics for Computer Science I
  - PHYS 100 - Survey of Physics
  - PHYS 100L - Survey of Physics Laboratory
- Any Social Sciences Course (100 level or above)

### 3.5) Program Target Group

All campuses in the UHCC system have an open-door access policy and serve diverse populations of students. The total student enrollment of Leeward CC is approximately 8,000 students. The proposed IIT Program at Leeward CC will recruit students from a range of diverse backgrounds including local high school graduates, returning adult students and veterans seeking to re-enter the workforce or change careers, and current industrial technology employees seeking to gain further education, skills, or promotion.

The IIT Program is designed to provide flexibility to meet a range of different student needs, by offering multiple certificate and associate degree options. Leeward CC provides student counseling and advisement to assist students in meeting their educational goals. Courses or certificates can also be taken as general education diversification requirements, electives, or concentrations for students enrolled in other programs.

The program is anticipating an initial enrollment of 25 students due to the constraints of the IIT laboratory space. The enrollment is anticipated to be 25 students in the first year followed by an additional increase of 15 - 25 students per year. After the first year and assuming an on time graduation, there will be a minimum of 50 students in the program at any given time. By following the recommended schedule, a full-time student will complete the associate degree in four semesters.

### 3.6) Program Resources

**Faculty Resources:** One full-time faculty/coordinator will be required to offer the IIT Program, along with two to four lecturers or subject matter experts. The college has an existing faculty/coordinator that oversees the Industrial Technology Program in OCEWD. As the program grows, additional faculty/lecturers will be required. There is a counselor housed in the Math and Sciences Division to advise students on its programs.

**Equipment:** Leeward CC has acquired over \$200,000 in equipment through the Trade Adjustment Assistance Community College and Career Training Grant from 2011-2014. Laboratory equipment that is currently being used are a rigging systems trainer, motor control trainer, biofuel production process system, modular chemical reactor system, supervisory control and data acquisition (SCADA) stations, programmable logic controller (PLC) stations, electronics trainer, and a mechanical drives integrated training system.

**Library Resources:** The IIT program will be developed to take full advantage of open educational resources (OER). Since courses will be offered traditionally, online and hybrid, and resources must be accessible for students taking classes through all delivery modes.

**Physical Resources:** A dedicated laboratory facility houses the equipment and supplies for the IIT program. OCEWD houses a fully functioning controls laboratory with equipment to support the labs. The controls lab has eight stations and the electronic lab has ten stations. The number of stations will need to be increased as enrollment in the courses increases.

The IIT program is a collaborative effort with the Math and Sciences Division and OCEWD. Resources will be shared to support



the program including faculty, equipment, supplies, and laboratory facilities.

The academic cost and revenue template details are included in the AS-IIT Program Proposal, attached in Field 4.

The Headcount Enrollment (A) and Annual SSH (B) is calculated based on planning that an enrollment of 25 - 30 students will enter the program each year, that students will take a full load of 30 - 31 credits each year, and that each year after the first year, 25 students will graduate. Thus after the first year, there will be a minimum of 50 students in the program at any given time. SSH is based on students taking 30 - 31 credits per year.

Calculations of Instructional Costs without Fringe (C) is based on an 11-month faculty/program coordinator at the C2 (Instructor) rank. The first year teaching capacity of 15 credits in the technical IIT courses will be taught by two lecturers. For the subsequent years, as enrollment increases, teaching capacity will increase to 42 credits or approximately four lecturers. Salary is based on entry 11-month faculty/program coordinator and A range lecturers.

Unique Program Costs (E) was calculated based upon an estimated \$6,000 for the first year, \$8,000 in the second year, and \$10,000 in the third year for consumables and maintenance of small equipment.

Revenues generated by Tuition (G) are based on the number of SSH multiplied by the applicable tuition; the tuition was based on the Proposed Tuition Schedule for the UHCC's. [http://www.hawaii.edu/policy/docs/temp/Attachment\\_1\\_Tuition\\_Schedule.pdf](http://www.hawaii.edu/policy/docs/temp/Attachment_1_Tuition_Schedule.pdf)

Instructional Cost with Fringe (K1)

The Support Costs (L) and Total Campus Expenditure (N) are from Leeward CC's page on the 2011-2012 UH Expenditures Report, <http://www.hawaii.edu/cgi-bin/iro/maps?esuhfy1112.pdf>

The program used for Comparable Cost/SSH (O), also taken from the above Expenditures Report, is General Academic Instruction.

### 3.7) Program Efficiency

The Program Efficiency will be measured by the University of Hawai'i Community College (UHCC) Instructional Annual Report of Program Data (ARPD) which includes the following indicators: (a) average class size, (b) fill rate, (c) FTE BOR appointed faculty, (d) majors to FTE BOR appointed faculty, (e) overall program budget allocation, and (f) cost per SSH.

The IIT Program will increase enrollment in the six existing General Education credit courses. There are a total of eighteen courses within the proposed program, out of which there are twelve non-credit industrial technology courses that will be reassessed and submitted for credit through the Leeward CC curriculum process. With the support of the Leeward CC administrators, the Math and Science Division and OCEWD will work together to convert these non-credit courses for submission for credit course approval in the fall 2016 semester.

The IIT Program is a collaborative effort with the Math and Science Division and OCEWD. Resources will be shared to support the program including faculty, equipment, supplies, and laboratory facilities. This new program proposal is also a collaborative effort which has led to a strategy to give students access to both sides of the "house"—non-credit and credit. A template will be created for students to "transfer" their courses from the non-credit to credit programs and vice versa.

There are no certificates or degrees that contain the technical core curriculum in the Associate In Science degree to be offered in the IIT Program. However, there are several programs at the other community colleges that offer a few related courses, but no single program has more than 20% of the content required for the industrial technology occupations this program will serve.

- AAS in EIMT at Honolulu CC and Kaua'i CC

- AS in ECET at UH Maui College
- AS in ET at Hawai'i CC and Kaua'i CC

As stated above and through research and communications with the above program faculty, we feel that there is no single program that offers more than 20% of the IIT program in their content, program learning outcomes, and the occupations that the programs prepare students for.

### 3.8) Program Effectiveness

The Program Effectiveness will be measured by the UHCC ARPD which includes the following indicators: (a) successful completion (equivalent C or higher), (b) withdrawals, (c) persistence (fall to spring); (d) degrees/certificates awarded, and (e) transfers to UH 4-year universities.

Effectiveness will be evaluated by the number of graduates as well as the number of students following the pathways but obtain shorter certificates (CO or CA), those who may continue their studies and obtain a four-year baccalaureate degree in related fields, and those already in the workforce who have their wage increased. Program effectiveness will be assessed annually by the IIT faculty as part of the program review process. The IIT Advisory Board will meet twice a year and will assist in assessing the program.

The IIT Program will be offered under the Math and Science Division with plans for the courses to be offered online wherever possible. ACCJC will be provided with the required notifications.

Current articulation agreements with other campuses in the UH system will be recognized for any existing coursework that is part of the program. If a campus offers one or more of the new IIT courses being developed for this program, Leeward CC and the campus will conduct a due diligence of the coursework and make a determination if articulation is warranted.

## 4) ATTACHMENTS

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- IIT Program Leeward CC.pdf (/api/cm/files/58b0db4368a2730c2c44947a)





## CIP Code for New Major at Leeward CC: Integrated Industrial Technology

Ron Umehira <umehira@hawaii.edu>

Mon, Jun 26, 2017 at 3:12 PM

To: Princess Soares <pfrederi@hawaii.edu>

Cc: Suzette Robinson <suzetter@hawaii.edu>, Jennie Thompson <jenniet@hawaii.edu>, William Labby <wlabby@hawaii.edu>, Bryson Padasdao <brysonep@hawaii.edu>, Pearl Iboshi <iboshi@hawaii.edu>, Dominic Estrella <dominice@hawaii.edu>

Hi Princess,

Aloha from Leeward CC and mahalo for your patience as we determine and decide on an appropriate CIP code for the new Integrated Industrial Technology (IIT) Program. The Math & Science Division Chair, program faculty in Engineering and in Industrial Technology, and I have been in discussion about this issue the past several weeks.

We met again this afternoon and after much discussion decided that CIP code 15.0406 as you recommended would be the best choice as it describes the new IIT program and aligns with the program courses the most. However, we are still very concerned about the number of annual job openings reflected with this CIP code as we feel many of the job openings in Hawaii and as reported by the employers are not classified under the respective and current SOC codes under 15.0406.

However, we are encouraged by what Pearl mentioned at our CTE Deans meeting last week Monday, that there could be an opportunity to select relevant SOC codes from several related CIP codes and customize them under one CIP code. We look forward to those discussions, but in the meantime we would like to move forward with the CIP code of 15.0406 for the new IIT Program.

Should you have any questions, please contact me.

Mahalo,  
Ron  
455-0321

On Wed, Apr 26, 2017 at 4:06 PM, Princess Soares <pfrederi@hawaii.edu> wrote:

Aloha Ron,

Here is the recommendation and research that IRAO is forwarding to Suzette. As mentioned, since this recommendation has been forwarded to Suzette, she will be working with the campus to determine the CIP code to use in Banner.

Mahalo,  
Princess

----- Forwarded message -----

From: **Princess Soares** <pfrederi@hawaii.edu>

Date: Wed, Apr 26, 2017 at 3:52 PM

Subject: CIP Code for New Major at Leeward CC: Integrated Industrial Technology

To: Pearl Iboshi <iboshi@hawaii.edu>

Aloha Pearl,

In the supporting documents for the Integrated Industrial Technology program, the campus had provided recommended CIP codes, primary CIP code being 47.0303 (Industrial Mechanics and Maintenance Technology) and secondary CIP code being 15.0303 (Electrical, Electronic and Communications Engineering Technology/Technician). After reviewing the program description and curriculum, my **recommendation is that the major uses CIP code 15.0406 (Automation Engineer Technology/Technician).**

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Ron Umehira  
Dean of Career and Technical Education  
Leeward Community College  
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