Luna Community College

PRE- ENGINEERING

Associate of Applied Science Degree

2017/2018

Luna Community College

Contents

Luna Community College

Program

Pre-Engineering: Associate of Applied Science Degree

Minimum of 62 Credit Hours

Program Goals

The intent of the program is to develop student interest in Science, Technology, Engineering and Mathematics (STEM), expose students to STEM curriculum, and foster the pursuit of advance degrees at the university level.

2015/18 Curriculum Profile

Place here and also link to the location on the luna website.

https://www.luna.edu/pre_engineering/

Degree Requirements - Minimum of 62 Credit Hours Print Requirements

General Education Core (36 hours)

AREA I. COMMUNICATIONS (9 HOURS)

ENG111	Freshman Composition I	3 credits
ENG115	Freshman Composition II	3 credits
SPCH111	Public Speaking	3 credits

AREA II. MATHEMATICS (4 HOURS)

MATH116	Intermediate Algebra	4 credits

AREA III. LABORATORY SCIENCE (8 HOURS)

AREA IV. SOCIAL AND BEHAVIORAL SCIENCES (9 HOURS)

AREA V. HUMANITIES AND FINE ARTS (6 HOURS)

Program Requirements (23 hours)

CS105	Introduction to Computer Science	3 credits
CS121	Introduction to Programming	4 credits
MATH180	College Algebra	4 credits

MATH190	Trigonometry	4 credits
MATH195	Calculus I	4 credits
STEM117	Introduction to Engineering Technology	3 creditsl
STEM250	STEM Capstone	1 credit

Approved Electives (3 hours)

***Students may select one elective course from STEM Department with faculty approval.

Pre-Engineering Program Curriculum Profile 2012-2015

Program Map (link also to website)

The program map marks courses that are scheduled by semester in order to complete this degree within two years (or one year if applicable). Refer to Appendix A for the program map.

Pre-Engineering: Associate of Applied Science Degree

Program Map

The Associate of Applied Science Degree in Pre-Engineering is designed to provide students a set of skills and courses that will transfer into a four-year engineering program, mathematics, or related field. The intent of the program is to develop student interest in Science, Technology, Engineering and Mathematics (STEM), expose students to STEM curriculum, and foster the pursuit of advance degrees at the university level. Students are strongly encouraged to consult with their LCC advisor for proper advising and course selection.

Degree Requirements Credit Hours: 62 - (General Education Core -36 credit hours)

Term 1/Fall Semester	Credits	Term 2/ Spring Semester	Credits
ENG111 Freshman Composition I	3	**ENG111 Freshman Composition II**	3
MATH116 Intermediate Algebra	4	**CS121 Introduction to Programming**	3
Laboratory Science	4	**Laboratory Science**	4
Social & Behavioral Science	3	**Social & Behavioral Science**	3
CS105 Introduction to Computers	3	**MATH180 College Algebra**	4
Semester Total	**17**		**17**
Milestones		**Milestones**	
Complete all Term 2 courses with a letter "C" grade or better		Complete all Term 3 courses with a letter "C" grade or better	
Meet with Advisor		Meet with Advisor	

Accumulate 45 or more credits		Apply for graduation	
Maintain a 2.0 GPA or Higher		Accumulate 60 or more Credits	
Enroll in Term 4		Maintain an overall 2.0 GPA or higher	
		Graduate with an Associates, consider transfer to 4 year college or university	

First Academic Year 34 total credit hours

Pre-Engineering: Associate of Applied Science Degree

Program Map

Term 3/ Fall Semester	Credits	Term 4 / Spring Semester	Credits
Humanities & Fine Arts	3	**STEM250 STEM Capstone**	1
SPCH111 Public Speaking	3	**MATH195 Calculus I**	4
STEM117 Introduction to Engineering	3	**Elective**	4
MATH190 Trigonometry	4	**Humanities and Fine Arts**	3
Social & Behavioral Science	3		
Semester Total	**17**	**Semester Total**	**12**
Milestones		**Milestones**	
Complete all Term 2 courses with a letter "C" grade or better		Complete all Term 3 courses with a letter "C" grade or better	
Meet with Advisor		Meet with Advisor	
Accumulate 45 or more credits		Apply for graduation	
Maintain a 2.0 GPA or Higher		Accumulate 60 or more Credits	
Enroll in Term 4		Maintain an overall 2.0 GPA or higher	
		Graduate with an Associates, consider transfer to 4 year college or university	

Second Academic Year 28 total credit hours

* It is highly recommended that students needing remedial courses utilize the summer semester to continue on a program map. This would allow students to complete their program of study within the traditional two academic years.

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Professional Development

List PD if it pertains specifically to meeting needs in this program; otherwise use PD at department level to identify all PD.

Courses Offered by Semester

Fall 2017

Fall By Course

Course	# of Sections	Credit	# Students Enrolled	Student Credit Hours
CS 105	2	3	9	27
MATH 180	3	4	37	111
MATH 190	1	4	8	32
MATH 195	1	4	10	40
STEM 250	1	1	3	3

Spring 2018

List courses offered for Spring.

Course	# of Sections	Credit	# Students Enrolled	Student Credit Hours
CS 105	1	3	12	36
CS 121	1	4	10	40
MATH 180	4	4	47	188
MATH 190	1	4	4	16
MATH 195	1	4	14	56
STEM 117	1	3	8	24
STEM 250	1	1	6	6

Summer 2018

List courses offered for Summer.

Course	# of Sections	Credit	# Students Enrolled	Student Credit Hours
CS 105	1	3	5	15
MATH 180	2	4	20	80
MATH 190	1	4	4	16

Student Enrollment (Three-Year Annual Trend)

2015/2016	2016/2017	2017/18
	7	7

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Student Graduation (Three-Year Annual Trend)

2015/2016	2016/2017	2017/18
0	0	1

Synopsis of Significant Findings

Program Improvement Plans Implemented or In-Progress

Advisory Committee Work

If a committee is established just for accounting for example, then you would include the yearly results.

Student Advisement by Semester

Get Advisement report from advisors and gather essential and relevant (program) info. for this section.

Yearly Return on Investment

Costs for instruction are listed by course.

Revenue

Course Name	#of Credits	#of Students	SCH	Tier $	Tier Funding Tot	Tuition $40	Total Revenue
CS 105	3	26	78	$133			
CS 121	4	10	104	$133			
MATH 180	4	37	111	$133			
MATH 190	4	16	64	$133			
MATH 195	4	24	96	$133			
STEM 117	3	8	24	$133			
STEM 250	1	6	6	$133			

Costs

Course Name	Instructor Salary	Fringe	Operational Costs (63 and 64 codes)	Total Costs

<Include Class Cost Per Student (e.g., Revenue-Costs/students enrolled)>

<Include Cost per Graduate (e.g., Revenue-Costs/students graduated this year)>

Alumni Surveys

<List any surveys you sent out this year.>

Program Learning Assessment Plan (Weave)

Appendix B provides the program assessment of learning plan created by the faculty.

Student Alumni

< You will need to keep in contact with graduating students. Where do they go? If they Transfer or go straight into a job; if a job, list job, if a transfer, list college.>

Curriculum Committee Work (Link)

<The following courses were submitted to the curriculum committee to align them with NM articulation agreements. Explain what, when, how it changed the program>

Final Program Approvals (Board of trustees) approvals to move program forward

<Final approvals from VP/ President and board of trustees meeting.>

Accreditation

<List any accreditation required for this program>

Evaluation of the Program

Summary

Luna Community College

Appendix A: Program and Student Assessment of Learning

<Academic Program Plan and SLO assessment goes here. Pull from WEAVE.>

In Progress

LCC Academic Pre-Engineering Assessment Plan 2017-2018

Expand All | Collapse All

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Team (3) +

Program Mission Statement

Preparing students for careers or further academic study in science, technology, engineering mathematics (STEM) and STEM education and imparting core knowledge in science and mathematics to all students. Serving the citizens of New Mexico with educational programs that facilitate enhanced opportunities for STEM related innovation and economic development.

Program Goal

+Add Program Goal

1 Pre-Engineering AAS

The Associate of Science degree in Pre-Engineering is designed to provide students a set of skills and courses that will transfer into a four-year engineering program, mathematics, or related field. The intent of the program is to develop student interest in Science, Technology, Engineering and Mathematics (STEM), expose students to STEM curriculum, and foster the pursuit of advance degrees at the university level. Students are strongly encouraged to consult with their LCC advisor for proper advising and course selection.

Program Learning Outcomes

+Add Program Learning Outcomes

1.1 an ability to apply knowledge of mathematics, sciences, and other related disciplines

Description

Nothing Entered

Supported Initiatives (2)

+Add Supported Initiative

General Education

- Communication- i.e. Written documents, oral and/or electronic presentations, digital assignments, portfolio, etc.
- Critical Thinking- i.e. Problem solving, analyze, explanation, argument, experiment, research, etc.

Action/Improvement Plan

+Add Action/Improvement Plan

PLO Assessment Method

+Add PLO Assessment Method

1.1.1 STEM250-STEM Capstone

Evidence Type

Capstone assignment - Academic Direct

Description

The capstone course is a self-directed, integrated, learning opportunity. The student will work during the course dates to prepare for a comprehensive capstone exam with the course instructor as a mentor. At the end of the course, the student will take a comprehensive exam based on the program learning outcomes. It is the intent of this course that the student will bring to bear all the learning and knowledge from the course work to show competence in the selected field of business. The student will take the capstone course in his or her last semester at LCC.

Describe the assessment method and Course used to assess this PLO.

Capstone exam is comprised of questions/problems from College Algebra, Calculus I, Calculus II, Calculus III, General Biology I, Biology II, General Chemistry I, General Chemistry II, and General Physics.

Benchmark/Target

+Add Benchmark/Target

1.1.1.1 ***Add Benchmark/Target Description***

Not Reported this Cycle

Benchmark/Target

Completion of the course with a ?B? (80%) or better

Finding

No students completing this program 2017-18

Analysis of Finding

Nothing Entered

Improvement Type

None Set

Improvement(s) Achieved

Recruitment

1.2 an ability to conduct experiments, as well as to analyze and interpret data

Description

Nothing Entered

Supported Initiatives (2)

+Add Supported Initiative

General Education

- Communication- i.e. Written documents, oral and/or electronic presentations, digital assignments, portfolio, etc.
- Critical Thinking- i.e. Problem solving, analyze, explanation, argument, experiment, research, etc.

Action/Improvement Plan

+Add Action/Improvement Plan

PLO Assessment Method

+Add PLO Assessment Method

1.2.1 STEM250-STEM Capstone

Evidence Type

Capstone assignment - Academic Direct

Description

The capstone course is a self-directed, integrated, learning opportunity. The student will work during the course dates to prepare for a comprehensive capstone exam with the course instructor as a mentor. At the end of the course, the student will take a comprehensive exam based on the program learning outcomes. It is the intent of this course that the student will bring to bear all the learning and knowledge from the course work to show competence in the selected field of business. The student will take the capstone course in his or her last semester at LCC.

Describe the assessment method and Course used to assess this PLO.

Capstone exam is comprised of questions/problems from College Algebra, Calculus I, Calculus II, Calculus III, General Biology I, Biology II, General Chemistry I, General Chemistry II, and General Physics.

Benchmark/Target +Add Benchmark/Target

1.2.1.1 ***Add Benchmark/Target Description***
Nothing Entered

Benchmark/Target
Nothing Entered

Finding
Nothing Entered

Analysis of Finding
Nothing Entered

Improvement Type
Process Revision › Other

Improvement(s) Achieved
Recruitment

1.3 an ability to collaborate with others on teams/groups

Description
Nothing Entered

Supported Initiatives (0) +Add Supported Initiative

Action/Improvement Plan +Add Action/Improvement Plan

PLO Assessment Method +Add PLO Assessment Method

1.4 an ability to identify, formulate, and solve applied science problems

Description
Nothing Entered

Supported Initiatives (0) +Add Supported Initiative

Action/Improvement Plan +Add Action/Improvement Plan

PLO Assessment Method +Add PLO Assessment Method

1.5 an understanding of professional and ethical responsibility

Description
Nothing Entered

Supported Initiatives (0) +Add Supported Initiative

Action/Improvement Plan +Add Action/Improvement Plan

PLO Assessment Method +Add PLO Assessment Method

1.6 an ability to communicate effectively

Description

Nothing Entered

Supported Initiatives (0) +Add Supported Initiative

Action/Improvement Plan +Add Action/Improvement Plan

PLO Assessment Method +Add PLO Assessment Method

1.7 a recognition of the need for and an ability to engage in life-long learning

Description

Nothing Entered

Supported Initiatives (0) +Add Supported Initiative

Action/Improvement Plan +Add Action/Improvement Plan

PLO Assessment Method +Add PLO Assessment Method

1.8 a knowledge of contemporary issues

Description

Nothing Entered

Supported Initiatives (0) +Add Supported Initiative

Action/Improvement Plan +Add Action/Improvement Plan

PLO Assessment Method +Add PLO Assessment Method

1.9 an ability to use the techniques, skills, and modern applied science tools necessary for professional practice

Description

Nothing Entered

Supported Initiatives (0) +Add Supported Initiative

Action/Improvement Plan

+Add Action/Improvement Plan

PLO Assessment Method

+Add PLO Assessment Method

Project Attachments

Drag and drop your files here or browse for files from your computer

In Progress

LCC CS112 Introduction to Operating Systems Course Assessment 2017-2018

Expand All | Collapse All

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Team (3) +

Course Description/Purpose

This course offers a brief introduction to operating systems where students will gain an understanding of the terms process, scheduling, memory, file management, processes and threads. Students will learn to use editors, compilers, linkers, assemblers, debuggers, and program assembly using libraries. Students will master concepts of process, threads, forks, and dinner's problem done with Linux.
Pre requisite: CS105 (3 Credit hours).

This course if offered during fall semesters.
Students are able to earn a Client Pro certification through TestOut as part of the curriculum.

PLAN (Year 1 of 3 Year plan)
This is 1 of 3 courses being used to assess the 3 selected PLOS for the 3 year CS Program Learning Outcome Assessment Plan.

Course Learning Outcomes

+Add Course Learning Outcomes

1 Describe the purpose and theory of operating systems

Students will understand the development cycle of operating systems.

CLO Assessments

+Add CLO Assessments

1.1 Text Book Assignments, Quizzes & Exams

Description

Students are assigned chapter review questions to be done as homework, These questions range from multiple choice to short answer questions.
Students will also complete 16 questions, 45 minutes timed, randomly drawn quizzes at the end of the chapter. Students are given two attempts both are randomly drawn.
Students complete 25 questions, 65 minutes timed, randomly drawn exams. Exams are comprised of questions from the chapter quiz banks and are from 3-4 chapters..

Supported Initiatives (3)

+Add Supported Initiative

General Education

- Quantitative Reasoning- i.e. Laboratory reports, exam, project, critique, written assignment
- Critical Thinking- i.e. Problem solving, analyze, explanation, argument, experiment, research, etc.
- Communication- i.e. Written documents, oral and/or electronic presentations, digital assignments, portfolio, etc.

Action Plan +Add Action Plan

Course Final Assessment +Add Course Final Assessment

1.1.1 ClientPro Certification EXAM

Source of Evidence
Certification - Academic Direct

Description

Students will take a 15 virtual lab skill based exam at the end of the semester. Upon passing with a 1500 or greater the students will earn a ClientPro Certification through TestOut. The objective categories are: Installation and Monitoring, Access, Applications, Hardware, Storage, Networking, Printing, System Protection, and Security . Each of the objectives is used to create the total score for the exam. Students scores can be compared to scores within the class, nationally, within the school. and within the state.

What questions from the tool/instrument/indicator meet this individual outcome?

All questions are skill based and all provide indicators of mastery of the the CLO; as they need to understand why, and how the operating system functions in order to complete the exam. The exam is a national certification exam, therefore, all questions are vetted for this exam.

Benchmark/Target

+Add Benchmark/Target

1.1.1.1 ***Add Benchmark/Target Description***

Not Set

Benchmark/Target

Benchmark passing grade for Text Book quizzes, exams and review questions is a 70%, Target us 85% of the students will score a 83% or higher on 75% of all quizzes, exams and review questions. .

Finding

85% of all students achieved or surpassed the benchmarks set for the text book material.

Analysis of Findings

Students needed more development of time management skills.

Improvement Type

Academic Process Modifications > Improved Scores

Improvement(s) Achieved

Nothing Entered

2 Differentiate between various operating systems

Students will be able to differentiate between the different operating systems. The student should also be able to identify what platform is common with the operating system.

CLO Assessments

+Add CLO Assessments

2.1 Text Book Assignments, Quizzes & Exams, Labs

Description

Students will get theory from the textbooks quizzes, review questions and exams, Students will be able to identify various operating systems while working within Labsim on labs.

Supported Initiatives (0)

+Add Supported Initiative

Action Plan

+Add Action Plan

Course Final Assessment

+Add Course Final Assessment

2.1.1 ClientPro Certification EXAM

Source of Evidence

Set Source of Evidence

Description

Students will take a 15 virtual lab skill based exam at the end of the semester. Upon passing with a 1500 or greater the students will earn a ClientPro Certification through TestOut. The objective categories are: Installation and Monitoring, Access, Applications, Hardware, Storage, Networking, Printing, System Protection, and Security . Each of the objectives is used to create the total score for the exam. Students scores can be compared to scores within the class, nationally, within the school. and within the state.

What questions from the tool/instrument/indicator meet this individual outcome?

All questions are skill based and all provide indicators of mastery of the the CLO; as they need to understand why, and how the operating system functions in order to complete the exam. The exam is a national certification exam, therefore, all questions are vetted for this exam.

Benchmark/Target

+Add Benchmark/Target

2.1.1.1 ***Add Benchmark/Target Description***

Not Set

Benchmark/Target

Benchmark is 1440, target is 85% of students to achieve a 1500 or higher.

Finding

Nothing Entered

Analysis of Findings

Students who met or exceeded the benchmark, spent more time practicing the labs as well as demonstrated well planned time management skills. Those who lacked time management skills were able to succeed by strict self-discipline to prepare for the exam and complete the required skill practice labs.

Improvement Type

None Set

Improvement(s) Achieved

Nothing Entered

3 Demonstrate standard operating and maintenance procedures

Students should be able to maintain a system such as the clean disk, defragment and backup procedure to name a few. The student should also be to identify the file system and features standard to different operating systems/

CLO Assessments

+Add CLO Assessments

3.1 LabSim ClientPro

Description

Students will complete labs on maintenance and standard operating system procedures.

Supported Initiatives (0)

+Add Supported Initiative

Action Plan

+Add Action Plan

Course Final Assessment

+Add Course Final Assessment

3.1.1 ClientPro Certification EXAM

Source of Evidence

Set Source of Evidence

Description

Students will take a 15 virtual lab skill based exam at the end of the semester. Upon passing with a 1500 or greater the students will earn a ClientPro Certification through TestOut. The objective categories are: Installation and Monitoring, Access, Applications, Hardware, Storage, Networking, Printing, System Protection, and Security . Each of the objectives is used to create the total score for the exam. Students scores can be compared to scores within the class, nationally, within the school. and within the state.

What questions from the tool/instrument/indicator meet this individual outcome?

All questions are skill based and all provide indicators of mastery of the the CLO; as they need to understand why, and how the operating system functions in order to complete the exam. The exam is a national certification exam, therefore, all questions are vetted for this exam.

Benchmark/Target

+Add Benchmark/Target

3.1.1.1 ***Add Benchmark/Target Description***

Not Set

Benchmark/Target

Benchmark is 1440, target is 85% of students to achieve a 1500 or higher.

Finding

Five out of seven students met or exceeded the set target.

Analysis of Findings

Students who met or exceeded the benchmark, spent more time practicing the labs as well as demonstrated well planned time management skills. Those who lacked time management skills were able to succeed by strict self-discipline to prepare for the exam and complete the required skill practice labs.

Improvement Type

None Set

Improvement(s) Achieved

Nothing Entered

3.1.1.2 ***Add Benchmark/Target Description***

Not Set

Benchmark/Target

Benchmark is 1440, target is 85% of students to achieve a 1500 or higher.

Finding

Nothing Entered

Analysis of Findings

Students who met or exceeded the benchmark, spent more time practicing the labs as well as demonstrated well planned time management skills. Those who lacked time management skills were able to succeed by strict self-discipline to prepare for the exam and complete the required skill practice labs.

Improvement Type

None Set

Improvement(s) Achieved

Nothing Entered

4 Configure storage devices, I/O devices, remote communication devices and network connectivity

Students will complete labs to demonstrate their knowledge of storage devices. I/O devices, RDP and Network Connections.

CLO Assessments

+Add CLO Assessments

4.1 *Nothing Entered*

Description

Nothing Entered

Supported Initiatives (0)

+Add Supported Initiative

Action Plan

+Add Action Plan

Course Final Assessment

+Add Course Final Assessment

4.1.1 *Nothing Entered*

Source of Evidence

Set Source of Evidence

Description

Nothing Entered

What questions from the tool/instrument/indicator meet this individual outcome?

Nothing Entered

Benchmark/Target

+Add Benchmark/Target

4.1.1.1 ***Add Benchmark/Target Description***

Not Set

Benchmark/Target

Benchmark is 1440, target is 85% of students to achieve a 1500 or higher.

Finding

Nothing Entered

Analysis of Findings

Students who met or exceeded the benchmark, spent more time practicing the labs as well as demonstrated well planned time management skills. Those who lacked time management skills were able to succeed by strict self-discipline to prepare for the exam and complete the required skill practice labs.

Improvement Type

None Set

Improvement(s) Achieved

Nothing Entered

Project Attachments

Drag and drop files or browse for file

Attachments (3)	File Size	
Course Learning Outcomes Form CS112.xlsx	17KB	⋮
CS112Comp.pdf	519KB	⋮
Cs112PrePost.pdf	485KB	