Oklahoma State Regents for Higher Education

CONTRACTUAL ARRANGEMENTS AND/OR TECHNICAL PRIOR LEARNING ASSESSMENT PROGRAM REQUEST FORM

Rose State College
Institution Submitting Proposal

Engineering Associate in Science Degree (039)
Program name and State Regents' three-digit program code

Eastern Oklahoma County Technology Center

Contractual Entity

Date of Governing Board Approval: 09/17/15

Signature of President: [Signature] Date: 9/17/15

Signature of Other Entity Signatory: [Signature] Date: 9/23/15
Hendrix, Frances

From: Higher Learning Commission <changerequests@hlcommission.org>
Sent: Friday, June 19, 2015 2:04 PM
To: Hendrix, Frances
Subject: Contractual Arrangement Conveyed

Thank you for your submission. Based on the information detailed below, the Commission has determined that it has sufficient information to constitute notification of the contractual relationship per policy and no further action is required. If you have any further questions, please send an email to changerequests@hlcommission.org.

Name: Frances M Hendrix
Institution: 1635 - Rose State College - OK
City: Midwest City
State: Oklahoma
Email address: fhendrix@rose.edu
Phone number: 405.733.7395

You confirm you are authorized to provide the Commission with information regarding your institution's contractual arrangements.

Academic program: Engineering, General
CIP code: 14.01
Course catalog name: Pre-Engineering Principles
Program or credential level: Associate
Expected start date: 2015-08-17
Contractual partner: Eastern Oklahoma County Technology Center

Total program credit hours: 62
Credit hours taught by contractual partner: 3
Calculated percentage: 4.84

The percentage taught by the contractual partner is less than 25%.
Does the contractual partner provide oversight of the curriculum? Yes
Does the contractual partner provide assurance of the consistency? Yes
Does the contractual partner establish academic qualifications for instructional personnel? Yes

The percentage representing the aggregate of the contractual partner's total efforts: Less than 25%
Contractual Arrangement and/or Technical Prior Learning Assessment Program Request Form

The proposal for a contractual arrangements or technical prior learning assessment (PLA) program should provide the following information.

NOTE: INFORMATION NOT INCLUDED IN THE PROPOSAL MAY CAUSE A DELAY IN PROCESSING.

1. A signature page (institutional president and entity’s signatory) that includes the names of the participating college and other entity.

2. Name of college-level certificate or degree program(s) toward which credit will be awarded, including the State Regents’ three-digit program code and any options.

(The size of the box is NOT an indicator of the amount of information required to address the request. Please include as much information as necessary [the boxes will expand].)

3. Will this arrangement include:

   ___ contractual arrangement   ___ technical assessments (PLA)   ___ Combination of both

4. List a) technical courses on the Statewide Contractual Course Inventory/Technical Crosswalk, b) assessments on the Statewide Inventory of Industrial, Technical and Other Assessments, and/ or c) general education courses that will be included in the contractual or technical PLA program.

a) Technical Courses in Contractual Arrangements:

<table>
<thead>
<tr>
<th>Higher Education Course:</th>
<th>Contractual Technical Course: Engineering Design and Development</th>
<th>Approved for listing on Statewide Contractual Course Inventory/Technical Crosswalk?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 2093 Pre-engineering Principles</td>
<td></td>
<td>Yes ___ No ___ Request Pending</td>
</tr>
<tr>
<td>Higher Education Course:</td>
<td>Contractual Technical Course:</td>
<td>Approved for listing on Statewide Contractual Course Inventory/Technical Crosswalk?</td>
</tr>
<tr>
<td>Higher Education Course:</td>
<td>Contractual Technical Course:</td>
<td>Approved for listing on Statewide Contractual Course Inventory/Technical Crosswalk?</td>
</tr>
<tr>
<td>Higher Education Course:</td>
<td>Contractual Technical Course:</td>
<td>Approved for listing on Statewide Contractual Course Inventory/Technical Crosswalk?</td>
</tr>
<tr>
<td>Higher Education Course:</td>
<td>Contractual Technical Course:</td>
<td>Approved for listing on Statewide Contractual Course Inventory/Technical Crosswalk?</td>
</tr>
</tbody>
</table>

State Regents’ Policy 3.6 and 3.15

http://www.okhighered.org/admin-fac/academic-forms/
b) Technical Assessments (PLA):

<table>
<thead>
<tr>
<th>Higher Education Course</th>
<th>Technical Assessment</th>
<th>Approved for listing on the Statewide Matrix of Industrial, Technical and Other Assessments?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes  No  Request Pending</td>
</tr>
<tr>
<td>Higher Education Course</td>
<td>Technical Assessment</td>
<td>Approved for listing on the Statewide Matrix of Industrial, Technical and Other Assessments?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes  No  Request Pending</td>
</tr>
<tr>
<td>Higher Education Course</td>
<td>Technical Assessment</td>
<td>Approved for listing on the Statewide Matrix of Industrial, Technical and Other Assessments?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes  No  Request Pending</td>
</tr>
</tbody>
</table>

*(add rows as needed)*

c) General Education Courses:

<table>
<thead>
<tr>
<th>Higher Education Course</th>
<th>Location?</th>
<th>Delivery Method?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Education Course</td>
<td>Location?</td>
<td>Delivery Method?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Education Course</td>
<td>Location?</td>
<td>Delivery Method?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(add rows as needed)*

5. Detail the maximum number of college credit hours to be articulated through contractual technical courses or technical assessments and the maximum college credit awarded toward the degree for work completed outside the institution$^1$.

<table>
<thead>
<tr>
<th>Total credit hours articulated through contractual technical courses:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total credit hours articulated through technical assessments:</td>
<td>0</td>
</tr>
<tr>
<td>Total credit hours that can be applied to the degree through approved contractual technical courses and/or assessments:</td>
<td>3</td>
</tr>
<tr>
<td>Total credit hours in general education:</td>
<td>39</td>
</tr>
<tr>
<td>Total credit hours required for the degree:</td>
<td>62-64</td>
</tr>
</tbody>
</table>

$^1$ Note: the Higher Learning Commission requires that at least "15 of the 60 credits for the associate's degree be credits earned at the institution itself, through arrangements with other accredited institutions, or through contractual relationships approved by the Commission." However, any time the credit from outside the institution surpasses 50%, a higher level of scrutiny/review from HLC should be expected.
6. Description of the contractual entity’s classroom and laboratory facilities and how they will be utilized.

Eastern Oklahoma County Technology Center offers up-to-date equipment and facilities to their students in the Engineering Design and Development Program designed through the Project Lead the Way Initiative. Computers are available in a lab environment for students to complete application assignments. Lecture environments are equipped with instructional technology used by the faculty member to conduct the class.

7. Academic credentials of contractual entity’s faculty responsible for classroom and laboratory experiences. (Include a summary document here. Full vitae, resume and certifications must be included as attachments, as well as documentation of the institutional process for credential and/or experience evaluation for contractual entity’s faculty.)

College faculty supervising the contractual arrangement or application of PLA credit for the program:
N/A

Contractual entity’s faculty teaching in the contractual arrangement:
Ms. Lynn Largent, M.Ed., Educational Leadership and Policies Studies, University of Texas; B.S., Mathematics Education, East Central University; A.S/A.A, Mathematics Education, Eastern Oklahoma State College
Mr. Edward Lord, M.Ed., Secondary Education, East Central University; B.S., Education, Oklahoma Baptist University

8. Outline the process to assure quality academic programming and continuous improvement in the contractual arrangement or technical PLA program.

Rose State College faculty reviewed the Eastern Oklahoma County Technology Center curriculum and determined that the curriculum duplicated three credit hours of instruction that occurs through the Engineering, Associate in Science degree program at Rose State College. Rose State College faculty reviewed the credentials of faculty from Eastern Oklahoma County Technology Center to ensure faculty hold credentials that meet or exceed the minimum requirements for adjunct and full-time faculty assignments at Rose State College. Rose State College faculty added the Eastern Oklahoma County Technology Center faculty to the Rose State College Engineering program advisory committee. Rose State College faculty were added to the Eastern Oklahoma County Technology Center Engineering Design and Development Program.
9. Describe the criteria for assessment of student outcomes in each contractual technical course and/or assessment.

See attached syllabi.

10. To maintain quality courses, the higher education institution will designate an appropriate individual to direct and oversee the contractual arrangement. Provide the name of the individual as well as the criteria and procedures that will be used for an annual evaluation of courses. (Note if same or different from #7)

In addition to the full-time Business Administration Associate in Applied Science degree program faculty members, Ms. Jerri Cachero, Coordinator for Technology Center Programs, Rose State College, oversees all contractual arrangements with technology centers to ensure that students are advised and enrolled appropriately, serves as the liaison between faculty representatives from the technology centers and the college. She holds meetings with faculty on campus, meets with faculty and staff at each technology center, and arranges and holds joint meetings. She also develops the annual Technology Center catalog, meets with admissions and enrollment staffs from the technology center and on campus, and hosts students from the technology centers on campus on enrollment/advisement days. In addition, she attends advisory committees, and other statewide meetings at the Oklahoma State Regents for Higher Education.

11. Describe the academic and student support services available to students enrolled in the contractual arrangement.

Students from the technology center are hosted on campus. Students are enrolled on campus by Academic Advisors, tour the campus and receive financial aid/college life information from Prospective Student Services and are taken on a campus-wide tour. Students complete their admissions forms, take COMPASS exams, are enrolled and attend various related seminars on campus. Students have access to the College’s website services such as those available in the Learning Resources Center and receive a Rose State College student I.D. card which grants students’ rights and privileges of a Rose State College student.

A college liaison visits each campus on a weekly basis to assist with questions related to degree completion, financial aid deadlines, Ticket to Rose, etc., and serves as an advisor to these students at their technology center.
12. Outline the financial arrangements between the institution and the contractual entity if different from that specified in policy; this should include student tuition and other charges applicable to the contractual arrangement.

Students pay the state-adopted rate of $8.00 per credit hour since instruction takes place at the technology center under the technology center budget.

13. Indicate if high school students may be enrolled in this contractual arrangement and/or any restriction based on age of students due to the nature of the technical field, licensure requirements, etc.

High school students are eligible for enrollment provided that they meet the admission requirements under the cooperative agreement policy.


COOPERATIVE AGREEMENTS PROGRAM  
ROSE STATE COLLEGE/EASTERN OKLAHOMA COUNTY TECHNOLOGY CENTER  
Fall 2015 – Spring 2016  

RSC – Engineering and Science Division  
Degree: A.S. - Engineering (039)  
Options: General, Mechanical, Aerospace or Elect/Comp  

Contacts: Dr. Wayne Jones, Division Dean  
Professor Steven Fowler  
Division Academic Advisor: Mr. Nick Bastani  

Eastern Oklahoma County Technology Center Program: STEM  
Contacts: Ms. Lynn Largent  
Mr. Edward Lord  

Credit Total: 3 Hours

<table>
<thead>
<tr>
<th>RSC Course Number and Title</th>
<th>MDTC Tech Center Units Covered</th>
<th>Credit Hours</th>
<th>RSC Faculty Initials</th>
<th>Tech Center Faculty Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 2093 Pre-engineering Principles</td>
<td>Engineering Design and Development</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


ENGINEERING DESIGN & DEVELOPMENT (PLTW) SYLLABUS
Senior PLTW Capstone Course

Eastern Oklahoma County Technology Center
Mr. Lord & Mrs. Largent
elord@eoctech.edu, lbrooksher@eoctech.edu

Course Description:
Engineering Design & Development (EDD) is an engineering research course in which students research, design, and construct a solution to an open-ended engineering problem. Students apply principles developed in the four preceding courses and are guided by a community mentor. They must present progress reports, submit a final written report and defend their solutions to a panel of outside reviewers at the end of the school year. (Prerequisite: 4 foundation courses or instructor approval)

Course Overview:
Engineering Design and Development (EDD) gives students an opportunity to exercise the skills they have developed not only in their PLTW classes, but in other classes and in their personal experiences in general. Students will work in teams to solve a problem of their choosing. EDD is not focused on producing a marketable process or product, though this can and does happen using the design process. EDD is not intended to be an “invention class” or a “patent generating class” but rather a class that centers on using, documenting, and working through the engineering design process to address a problem. The end result should always be driven by the process rather than an individual or team’s skill sets, opinions, or personal preferences.

EDD is about the journey of seeking a well-justified original solution to a real-world problem. Some solutions will prove to have merit as a potential solution, but when tested, will prove to have little value in solving the problem. Some solution attempts will prove to cause as many new problems as they solve, and some will prove to have great merit toward solving the problem in the end. No one will know the solution outcome at the beginning of the journey, but all groups will move through the problem solving process and gain skills they will be able to implement in any profession for the rest of their lives.

In addition EDD is less structured than most other courses, students must take more responsibility in their learning than they are accustomed to or are comfortable with taking. However, more responsibility should translate to more ownership and more reward.

EDD also is a course that provides students with the opportunity to reflect upon prior experiences and to consider how best to succeed with the design problem selected. This educational experience will probably be unlike prior learning experiences and will come with increased expectations. It is expected that students will produce quality work, be able to work independently on allocated tasks, be able to work effectively as a team member, take ownership of tasks assigned to them, complete design tasks within a specified time period with little supervision and generate quality documentation of their design process and findings.

Finally, EDD is a course in which the relationship between the Student and the Instructor, or more accurately, facilitator is different then what they are familiar with their other courses. It is important that students be aware of the fundamental differences in the student and teacher roles between EDD and most other courses. The student will be expected to have exemplary time management skills.
Course Expectations:

Students will demonstrate:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multi-disciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- an ability to read at least 100 pages of technical reading

Course Activities/Projects/Assessments:

- Research, design, and construct a solution to an open-ended engineering problem
- Present and defend students’ solution to a panel of outside reviewers
- Create designs using 3-D Design software applications
- Maintain an engineer’s notebook

A sample rubric is attached
EDD Course Outline and Timeline:

Component 0 – Project Management (10 days)

Engineering Design and Development as a Course
Documenting an Engineering Design Process
Goals, Timelines, and Contacting Experts
Project Evaluation and Scoring Rubrics
Intellectual Property

Component 1 – Researching a Problem (31 days)

Element A – Problem Identification and Justification (9 days)
Element B – Identification and Analysis of Prior Solution Attempts (14 days)
Element C – Presentation and Justification of Solution Design Requirements (8 days)

Component 2 – Designing a Solution (30 days)

Element D – Design Concept Generation, Analysis, and Selection (13 days)
Element E – Application of STEM Principles and Practices (10 days)
Element F – Consideration of Design Viability (7 days)

WINTER BREAK

Component 3 – Creating a Prototype and Testing Plan (35 days)

Element G – Creation of a Testable Prototype (18 days)
Element H – Prototype Testing and Data Collection Plan (8 days)
Element I – Data Results and Testing Analysis (8 days)

Component 4 – Evaluation and Reflection on the Design Process (14 days)

Element J – Documentation of External Evaluation (5 days)
Element K – Designer Reflection on the Process (5 days)
Element L – Presentation of Designer’s Recommendations (4 days)

Component 5 – Presentation of the Design Process (20 days)

Element M – Presentation of the Project and Project Portfolio
Element N – Writing Like an Engineer

LAST DAY of APRIL
ENGINEERING DESIGN & DEVELOPMENT (EDD)
COMMITMENT to ATTEND PRESENTATIONS

Eastern Oklahoma County Technology Center
Mr. Lord & Mrs. Largent
elord@eoctech.edu, ibrooksher@eoctech.edu

ALL Engineering Design and Development (EDD) students must present progress reports and defend their solutions to a panel of outside reviewers three times during the school year. The dates and times for these presentations have not been set for 2014-2015; however, for the past two years the presentations have taken place in November, January and April from 7-10pm at Mt. Hebron High School. The 2014-2015 presentation date, time and location will be set at least three weeks prior to the actual presentation. All students are required to attend all three presentations. If a student is unable to make this commitment, s/he is expected to drop the course. Students who do not commit to attending all three presentations by returning this form, signed by both the student and a guardian, will be referred to Guidance for a schedule change. This signed form must be returned no later than Friday, August 28, 2014.

Student Name Printed

Date

Student Signature

Guardian Name Printed

Date

Guardian Signature

Engineering Design and Development (PLTW) Syllabus  August 2015  Mr. Lord, Mrs. Largent 4
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome 1</strong> Ability to identify, formulate, and solve engineering problems</td>
<td></td>
</tr>
<tr>
<td><strong>Problem Statement</strong></td>
<td></td>
</tr>
<tr>
<td>No problem statement and no design deliverables.</td>
<td></td>
</tr>
<tr>
<td>Problem statement shows little understanding of the problem and few design deliverables are included</td>
<td></td>
</tr>
<tr>
<td>Problem statement shows some understanding of the problem and includes most of the final design deliverables</td>
<td></td>
</tr>
<tr>
<td>Problem statement shows full understanding of the problem and clearly includes final design deliverables</td>
<td></td>
</tr>
<tr>
<td><strong>Procedure</strong></td>
<td></td>
</tr>
<tr>
<td>No procedure, tries things out unsystematically</td>
<td></td>
</tr>
<tr>
<td>Outlines a general procedure but does not clearly identify methods. No alternative designs are given.</td>
<td></td>
</tr>
<tr>
<td>Solution procedure and methods are not always clearly defined. Few alternative designs are evaluated.</td>
<td></td>
</tr>
<tr>
<td>Clear definition of solution, procedure and methods. Different alternatives are considered and evaluated</td>
<td></td>
</tr>
<tr>
<td><strong>Final Design</strong></td>
<td></td>
</tr>
<tr>
<td>Final design does not demonstrate the use of any design process, engineering standards, economics to satisfy any design objectives and real-word constraints</td>
<td></td>
</tr>
<tr>
<td>Final design demonstrates little use of design process, engineering standards, economics to satisfy few design objectives and real-word constraints</td>
<td></td>
</tr>
<tr>
<td>Final design demonstrates some use of design process, engineering standards, economics to satisfy some design objectives and real-word constraints</td>
<td></td>
</tr>
<tr>
<td>Final design demonstrates effective use of design process, engineering standards, economics to satisfy design objectives and real-word constraints</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Outcome 2</strong> Design components, devices, and systems to meet specific needs in engineering</td>
<td></td>
</tr>
<tr>
<td><strong>Design Process</strong></td>
<td></td>
</tr>
<tr>
<td>No evidence of ability to understand the design requirements, limitations, analyze different alternatives, and provide a feasible design</td>
<td></td>
</tr>
<tr>
<td>Little evidence of ability to understand the design requirements, limitations, analyze different alternatives, and provide a feasible design</td>
<td></td>
</tr>
<tr>
<td>Some evidence of ability to understand the design requirements, limitations, analyze different alternatives, and provide a feasible design</td>
<td></td>
</tr>
<tr>
<td>Clear evidence of ability to understand the design requirements, limitations, analyze different alternatives, and provide a feasible design</td>
<td></td>
</tr>
<tr>
<td><strong>Use of Engineering Principles</strong></td>
<td></td>
</tr>
<tr>
<td>No evidence of ability to use engineering principles to design components, devices or systems</td>
<td></td>
</tr>
<tr>
<td>Some evidence of ability to use engineering principles to design components, devices or systems</td>
<td></td>
</tr>
<tr>
<td>Some evidence of ability to use engineering principles to design components, devices or systems</td>
<td></td>
</tr>
<tr>
<td>Clear evidence of ability to use engineering principles to design components, devices or systems</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td>Outcome 3</td>
<td>Demonstrate an ability to use techniques, skills and modern engineering tools necessary for engineering practice.</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Selection of appropriate tools, skills and techniques in solving the problem</td>
<td>No evidence of ability to select appropriate tools, techniques and skills to solve problems or design a system</td>
</tr>
<tr>
<td>Application of tools, techniques and skills to effectively solve problems or design a system</td>
<td>No evidence of ability to correctly apply tools, techniques and skills to effectively solve problems or design a system</td>
</tr>
<tr>
<td>Analyzing the results gained from the tools</td>
<td>No evidence of correct conclusion of results gained from the tool</td>
</tr>
</tbody>
</table>

**Totals:**  
Outcome 1  
Outcome 2  
Outcome 3  
Final  

**Teacher Comments:**

*Engineering Design and Development (PLTW) Syllabus*  
*August 2015*  
*Mr. Lord, Mrs. Largent*  
*6*