Industrial-Based Senior Projects

BACKGROUND:

Thank you for your interest in sponsoring a senior project with the Lake Superior State University (LSSU) School of Engineering and Technology. LSSU has conducted numerous senior projects for over two decades, mostly partnering with industry (more information on previous projects can be found at the following link: <https://www.lssu.edu/school-of-engineering-and-technology/senior-projects/>). These projects have resulted in outstanding outcomes thereby providing an excellent experience for all the stake holders, namely, the industrial partners, the LSSU engineering and technology graduates, and the LSSU School of Engineering and Technology. The process for selecting the senior projects for the academic year will occur by the mid part of August. **The deadline for submitting project proposals is July 31**.

As you may know, all LSSU engineering and engineering technology students are required to work on a senior capstone project during their final year. The project can be research based, co-op based, or industrially based. Most of our projects are industrially based. That is where you come into the picture, and that is the subject of this document.

During the spring and summer, we recruit project proposals from industrial partners. Project proposals are submitted from a variety of companies within Michigan, the surrounding states, Canada, and beyond. Around early-to-mid August, the Senior Projects Faculty Board (SPFB) reviews and then selects the projects for the academic year and assigns students. The students begin work on the selected projects in early September and are scheduled to complete the projects in late April of the following year. The SPFB assigns a Faculty Advisor to each project. Together, the Faculty Advisor, the industrial partner, and the SPFB oversee the project for its duration. The SPFB works closely with the industrial partner to define the scope of the project early in the Fall semester. The SPFB also monitors project progress and may adjust the project scope during the academic year after discussions with the industrial partner. More information about the different people involved and their roles and responsibilities can be found in Appendix A.

The fee to sponsor an engineering senior project at LSSU is $5,000. This fee is in addition to actual material expenses necessary to complete project. Neither the students nor the faculty are paid for their engineering work. The customer owns all designs, prototypes, or systems that result from the project, but must agree not to hold LSSU or the students liable for repercussions of any design or build flaw. The customer must provide an engineer who will act as the Industrial Contact for the project. The Industrial Contact is requested to attend a kick-off meeting in late August (if needed), provide input through periodic informal meetings, attend at least one formal design review, and to attend the final presentation in late April/early May. The meetings and design reviews may be conducted via videoconference or by using other networking tools.

LSSU senior projects have won many awards and national design competitions (8 since the year 2000) and results have also been presented at professional conferences. We are proud of both the quality of our projects and the awards that the projects have received. Your support of an LSSU senior project is an excellent way to receive a student-engineering project (such as a **feasibility study, proof-of-concept, or working prototype**) at a low cost and to support the LSSU engineering and engineering technology programs.

If you have any questions about the guidelines and/or about determining appropriate goals/an appropriate scope for a project that you have in mind, you are welcome to contact the SPFB chair directly before submitting your proposal; this is especially recommended if you have not been previously involved in Senior Projects at LSSU. The current SPFB chair is Dr. Joe Moening and can be reached at 906-635-2135 or at JMOENING@LSSU.EDU please use email during the summer (May through August). We look forward to receiving a project proposal from your organization.

Project Selection Criteria

Please understand that submission of a project proposal does not guarantee your project will be selected. There are numerous factors that are considered by the Senior Projects Faculty Board while selecting the projects. Here are some of the main considerations but others may be used as appropriate:

1. There a good match between the senior students and the project being considered. For example: in a particular year there may be far more mechanical engineering students than in the other fields, which means, more mechanical-based projects will be selected.
2. There a good match between the resources at LSSU (faculty, staff, lab facilities, etc.) and the project.
3. The scope of the project fits the LSSU academic time frame. That is, the project scope should be appropriate so that it can be completed over two semesters (30 weeks) with a **student team** which typically consists of 4-6 members who are expected to put in about 15 hours per week per team member towards the project.
4. The project is **clearly defined** and with **achievable outcomes**.
5. The project outcome is a **feasibility study, proof-of-concept, or working prototype**. Since these are student projects they **cannot** be expected to produce production-ready outcomes. In addition, the LSSU School of Engineering & Technology and/or the students **cannot** provide support after the project’s completion.
6. There is clear evidence that engineering and financial support will be provided by the sponsoring organization.

Project Proposal

INSTRUCTIONS:

Fill in the attached proposal form as best as you can. The areas under the headings are intended for you to insert your own words. Appendix A provides examples of the roles and responsibilities of participant in the project. Appendix B shows the legal forms that the students, LSSU, and the company sign. A sample proposal, which includes ***italicized text* *for a hypothetical project proposal*** is included in Appendix C and is intended to give you an idea of what to write.

We do ***not*** need to know all of the specific details about your project at this point. We are mainly looking to understand enough about the project to decide if it will be selected (using the criteria above). It should take you about an hour or less to fill out the form.

You can either send the form by postal mail or by electronic mail.

|  |  |  |
| --- | --- | --- |
| By Postal Mail |  | By E-Mail |
| Dr. Joe Moening |  | JMOENING@LSSU.EDU |
| Lake Superior State University |  |  |
| School of Engineering & Technology |  |  |
| 650 West Easterday Ave. |  |  |
| Sault Sainte Marie, MI 49783 |  |  |

If you have any questions or need any assistance, contact the SPFB chair, Dr. Joe Moening, at 906-635-2135 or at JMOENING@LSSU.EDU. Thanks again for your interest!

Senior Project Proposal Form

Background

Briefly describe your company or organization.

|  |
| --- |
|   |

Project Description

Indicate the category of the project, checking all that apply:

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  Mostly Research | [ ]  Mostly Analysis | [ ]  Mostly Design | [ ]  Design and Build |
| [ ]  Mechanical Oriented | [ ]  Electrical Oriented | [ ]  Computer Oriented | [ ]  Robotics Oriented |
| [ ]  Multidisciplinary | [ ]  Process Design | [ ]  Other:  |

Describe the overall project. The questions below are to help guide your description. If the project is selected, the description you give below will be given to the students for them to rate their level of interest. Please make this description as clear as possible so everyone has a good “big picture” understanding of the project.

* Why is the project needed? (Project purpose)
* What is expected outcome of the project? (Project goal)

|  |
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Special Requirements

Briefly describe and special requirements the project may require (if any) such as:

* Will students be expected to travel (using the project budget) as part of the project?
* Is there required equipment that you will not supply or provide money to purchase (ex: robot)?
* Are there any special requirements (ex: 480VAC, compressed air, forklift access, etc.)?

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Project Budget

Provide an estimate of the cost of materials and supplies for this project (not including your engineering costs or the $5,000 project sponsorship fee).

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Technical & Engineering Work

Explain the technical & engineering work that will be required to complete this project.

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Technical Standards/Specifications

Specify the technical standards/specifications that students should incorporate into this project. Examples, of standards/specifications include those provided by the Society of Automotive Engineers (SAE), National Electric Code (NEC), Robotic Industry Association (RIA), etc.

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Technical Content and Required Expertise

Indicate which technical skills will be needed by the students, using the following rating system:

|  |  |  |  |
| --- | --- | --- | --- |
| 0 – None [Needed] | 1 – Small Amount | 2 – Moderate Amount | 3 – Large Amount |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Skill** | **Rating** |  | **Skill** | **Rating** |
| Mechanical Design |   |  | Instrumentation & Test Equipment |   |
| Mechanical Simulation |   |  | Electrical/Digital Design |   |
| Machining/Fabrication |   |  | Electrical/Digital Simulation |   |
| CAD |   |  | Electrical Wiring |   |
| CNC |   |  | Classical Control |   |
| CAM |   |  | Microcontrollers/Embedded Systems |   |
| Robotics Programming |   |  | C or other Programming |   |
| Robotics Simulation |   |  | General Software |   |
| Machine Vision |   |  | Mathematics |   |
| PLC |   |  | Fundamental Science |   |
| HMI |   |  | Other:  |   |

Additional comments about technical content (optional):

|  |
| --- |
|   |

Number and Type of Students Needed:

Estimate the number of engineering students from each discipline that will be needed.

|  |  |  |
| --- | --- | --- |
| **Number** | **Discipline** | **Reason students are needed** |
|   | Computer Engineering (CE) |   |
|   | Electrical Engineering (EE) |   |
|   | Electrical Eng. Technology (EET) |   |
|   | Manufacturing Eng. Tech. (MfgET) |   |
|   | Mechanical Engineering (ME) |   |
|   | Robotics Engineering (RE) |   |

Estimated Size of Work Area

Provide an estimate of the size of the work area needed for this project. Specify the estimated square footage along with any specific length requirements (such as you have a 10-ft. long conveyor so you need at least 12-ft. for one of the dimensions). Include the required ceiling height if greater than 8-ft is needed.

|  |
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Project Challenges

Briefly describe any challenges (technical or otherwise) foreseen with this project.

|  |
| --- |
|   |

Industrial Support

List the type(s) of support, other than money and the industrial contact’s time, which your company will provide for the project.

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|   |

Also list the types of support that your company will not provide for the project (if any). Successful projects require support of individuals within your organization that have appropriate decision making authority.

|  |
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|   |

Legal Agreements

There are two legal forms associated with each project. *Form A: Agreement and Release* is to be signed by each student on the project. *Form B: Agreement* is to be signed by LSSU, your organization, and each student on the project. Both legal forms are attached in Appendix B of this document. Please read them carefully.

Using the first set of checkboxes below, indicate whether your organization is able to sign them without modification or your organization will propose modifications. **Please include any proposed modifications with the submission of this form.** Using the second set of checkboxes below, indicate whether or not your organization has additional forms that will need to be signed. This is very important and needs to be determined before project acceptance.

|  |  |
| --- | --- |
|  | **Legal Forms A and B** |
|[ ]  May be signed without modification |
|[ ]  Needs to be modified **(attach modified language)** |
|  |  |
|  | **Additional Forms** |
|[ ]  Are not needed |
|[ ]  Are needed **(attach additional forms)** |
|[ ]  Non-disclosure agreement (NDA) will be needed (please complete section below) |

NDA Contact at company (if an NDA is required)

If an NDA is needed, the discussions for this will need to be initiated at the time of the proposal submission with a goal of having the NDA signed by both parties by **September 30**.

|  |  |  |  |
| --- | --- | --- | --- |
| Name |   | Phone |   |
| Title |   | Email |   |

Contact Information

Provide your information and the information of the likely industrial contact for the project. If you will be the industrial contact for the project or if this person has yet to be identified, just leave the latter part blank. The longer the Industrial Contact has been at your company, the more likely your project will be successful and be selected.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Person Submitting Proposal** |  | **Likely Industrial Contact (if different)** |
| Name |   | Name |   |
| Title |   | Title |   |
| Phone |   | Phone |   |
| Email |   | Email |   |
| Tenure |   | Tenure |   |

|  |  |
| --- | --- |
|  | **Company Mailing Address** |
| Attention |   |
| Company |   |
| Street |   |
| City |   |
| State |   |
| Zip Code |   |

## Project Constituent Roles & Responsibilities

The following is an attempt at defining the roles and responsibilities of each of the concerned constituents of the LSSU Engineering Senior Projects program.

Senior Projects Faculty Board (SPFB):

The body that organizes & oversees all Senior Projects activities.

* Consists of the chair, the faculty advisors (FAs), the laboratory engineers, and others (when needed)
* Typically meets weekly to address project needs and student/team requests
* Defines policies for the LSSU Engineering Senior Projects course/experience (within the constraints of other LSSU policies)
* Implements policies: Oversees the course, assigns grades, and determines disciplinary actions
* Defines course objectives, lectures, and creates/edits class PowerPoint slides
* Determines, with the recommendation of the team’s FA, when a team’s project has satisfied the acceptance criteria and is therefore complete

Faculty Advisor (FA):

The faculty member that advises at least one of the Senior Project teams.

* Participates as an active member of the SPFB
* Creates, critiques, and grades the team members’ assignments, group interactions, and performance
* Advises the team on:
	+ Class assignments (PDP, Scope Presentations, Timeline, Design Reviews, etc.)
	+ Group interactions and professional behavior
	+ Interaction with the Industrial Customer (IC), SPFB, other FAs, and other Senior Projects groups and students
	+ Project direction, design, content
* Initiates disciplinary action of team members
* Guides ICs, especially new ICs, with understanding the roles and responsibilities stated in this document
* Shields the team from *unreasonable* expectations (e.g. students should not be treated as if they were full-time employees)
* May share technical ideas with the team, but is *not* personally responsible for the outcomes of the project nor is there an expectation for the FA to have expertise in the specific area

Industrial Customer (IC):

The contact at the company that is sponsoring one of the projects.

* Submits a project proposal (including a budget and the identification of a project leader at the sponsoring company)
* Works with the FA and team to establish project acceptance criteria
* Supports the Senior Project team assigned to the project by:
	+ Maintaining contact (outside of email) with the team at least once every 4 weeks via events\*, including:
	+ Weekly (, bi-weekly, or whatever the group decides) team meetings,
	+ Graded design reviews, and
	+ Presentations
	+ Advising the team on specialized topics or expertise (to be determined by the specialization of the company, the project, and the expectations of the IC)
	+ Providing funds for the project and the project fee, which may constitute performing some of the purchasing for the team (as directed by the IC)
	+ Communicating with the FA as needed
* Does not manage the [student’s portion of the] project, but rather externally advises it in coordination with the FA

\*Note: Some of these events can be attended via phone and/or video conference calls.

Student:

A student enrolled in EGNR491 and/or EGNR495.

* Attends all senior project functions as assigned, including:
	+ All team meetings
	+ All IC meetings
	+ All class and other team activities (lectures, labs, design reviews, presentations, etc.)
* Submits or participates in all class, lab, and FA assignments
* Learns and starts to apply management skills (peer evaluations, Gantt charts, RASI charts, meetings/agendas/minutes, etc.)
* Acts as a role model to the underclassmen (acting in a professional manner at all times)
* Holds a general responsibility for the project
* Is always prepared to discuss their project and/or give impromptu demonstrations to visitors
* Is responsible for completing the project by spring semester’s end, ensuring the result fulfills the stated acceptance criteria; students will generally be required to stay beyond the end of the semester if this responsibility is not fulfilled

## Legal Forms

FORM A: AGREEMENT AND RELEASE

As a member of Team ***Insert team name*** and a student enrolled at Lake Superior State University (the University), hereby confirm that I have full knowledge regarding the requirements related to EGNR491 and EGNR495, Engineering Design Project I and Engineering Design Project II, and the need to engage in a senior project design effort to receive a degree from the University. I also understand and agree that I may need to seek the assistance, counsel and participation of ***Insert company name*** (the Company), to successfully complete the course project.

In consideration of being allowed to enroll in the course, and for the assistance received from the Company, I agree to hold harmless the Company, its officers, employees, and agents from any claims by me, my heirs or assigns arising out of my participation in the design project.

I further understand and agree that in exchange for the assistance provided to me, I hereby convey all of my rights of whatsoever nature to the design developed by me to the Company.

I further acknowledge that I will not intentionally violate any patent or design rights related to the project. I have fully informed myself of the contents of this affirmation and release by reading it before signing.

I understand this document and have willingly executed it on ***Insert date***.

|  |  |  |
| --- | --- | --- |
|  |  |  |
| signature |  | signature |
| ***Insert student name*** |  | ***Insert student name*** |
|  |  |  |
| signature |  | signature |
| ***Insert student name*** |  | ***Insert student name*** |
|  |  |  |
| signature |  | signature |
| ***Insert student name*** |  | ***Insert student name*** |

## FORM B: AGREEMENT

This Agreement is made on ***Insert date***, between ***Insert company name*** (the Company), Lake Superior State University of Sault Ste. Marie, Michigan (the University), and ***Insert team name*** (the Students).

In consideration of the fact that each of the parties acknowledges and agrees that it is in their interest to have the Student engaged in a senior Engineering Design Project, hereinafter referred to as Design, in connection with the Student's academic program at the University, it is agreed that:

1. Each of the parties understands that the Design is being undertaken for EGNR491 and EGNR495, Engineering Design Project I and Engineering Design Project II, and is the work of the Students. The parties further understand that neither the Students nor the University will or has received any compensation for the Student's work from the Company, but that the Company will provide advice and counsel on the Design during the term of the course. The Company may provide equipment, may provide the use of its facilities for the design project, and has agreed to pay a project fee that will go to the School of Engineering and Technology for the support of Senior Projects.
2. Upon completion of the course, the results of the Student's work shall be conveyed to the Company along with all rights of ownership and use.
3. The Company acknowledges that the Design or prototype is a Student product and further acknowledges that neither the Students nor the University warrant its merchantability, use, safety or patentability. Any decision to use the Design or a prototype is solely that of the Company.
4. The Company agrees to indemnify the University, its officers, employees, and agents, and the Students from all liability or loss, including attorney's fees, that the University, its officers, employees or agents, or the Student may suffer or that may occur arising out of any claim, action or proceeding that may be brought against the University, its officers, employees or agents, or the Student for:
5. Any violation of any patent in connection with the use, distribution, or sale of the Design or any prototype;

b. Any injury or loss to any person or damage or loss to property including that of the Company arising out of the use, distribution or operation of the Design or a prototype.

The Company agrees to indemnify the University, its officers, employees and agents, and the Students against any claims brought, or actions filed, against the parties in respect to the subject of indemnity herein recited, whether or not such claims or actions are valid, and against all costs incurred. The Company further agrees that the University, its officers, employees and agents, and the Students may employ an attorney of their selection to appear and defend the action at the Company's expense.

In witness whereof, the parties below indicate that they have reviewed and accept the terms of this Agreement.

|  |  |  |
| --- | --- | --- |
|  |  |  |
| signature |  | signature |
| ***Insert representatives name*** |  | **Dr. Kimberly Muller** |
| ***Insert company name*** |  | **Dean** |
| Company Representative |  | Lake Superior State University |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| signature |  | signature |
| ***Insert student name*** |  | ***Insert student name*** |
| Student at LSSU |  | Student at LSSU |
|  |  |  |
| signature |  | signature |
| ***Insert student name*** |  | ***Insert student name*** |
| Student at LSSU |  | Student at LSSU |
|  |  |  |
| signature |  | signature |
| ***Insert student name*** |  | ***Insert student name*** |
| Student at LSSU |  | Student at LSSU |

## Example Project Proposal

Company Background

Briefly describe your company and your division.

|  |
| --- |
| ***Vivicom is a division of Vivitel International, Inc. Vivitel International has 8,500 employees at 13 sites throughout the United States. The company designs and manufactures specialized electronic components for electrical equipment manufacturers in the United States and Europe. Vivicom has 1,250 employees and is located in Ann Arbor, Michigan. Vivicom designs and manufactures ultra fast electronic switches to telecom companies and satellite manufacturers.*** |

Project Description

Indicate the category of the project, checking all that apply:

|  |  |  |  |
| --- | --- | --- | --- |
| □ Mostly Research | □ Mostly Analysis | □ Mostly Design | ⮽ Design and Build |
| □ Mechanical Oriented | ⮽ Electrical Oriented | ⮽ Computer Oriented | □ Robotics Oriented |
| □ Multidisciplinary | □ Process Design | □ Other: |

Describe the overall project. The questions below are to help guide your description. If the project is selected this description (along with other selected projects will be given to the students for them to rate their level of interest. Please make this description as clear as possible so everyone has a good “big picture” understanding of the project.

* Why is the project needed? (Project purpose)
* What is expected outcome of the project? (Project goal)

|  |
| --- |
| ***We have a contract to design a digital router that may be packaged into a subsystem for a satellite. The router must run at 30 GBytes per second and must run off of 12 V and consume less than 25 mW of power. The router is currently being designed and we plan to manufacture prototypes within 1-2 years.******We want LSSU to design and build a test stand to verify the operation of prototypes of this router unit. The test stand should allow our engineers to insert router prototypes and test their operation. The test stand should simultaneously send 300 10MHz test signals to the router and then check the output signal to see if any error has occurred.******The expected outcome will be a fully functional prototype test stand that our engineers can use to test router prototypes and documentation that would allow us to construct additional test stands.*** |

Special Requirements

Briefly describe and special requirements the project may require (if any) such as:

* Will students be expected to travel (using the project budget) as part of the project?
* Is there required equipment that you will not supply or provide money to purchase (ex: robot)?
* Are there any special technical considerations (ex: 208V 3-phase power, large space, etc.)?

|  |
| --- |
| ***We expect the students to travel to Vivicom in the fall semester to have a plant tour and view several existing products. The travel costs for this student travel are included in the projected budget.******A high-speed 500MHz 4-channel oscilloscope will be sent to the team at the start of the project.*** |

Project Budget

Provide a rough estimate of the cost of materials and supplies for this project (not including your engineering cost or the $5,000 project fee).

|  |
| --- |
| ***I have forecast that this project will cost approximately $50k. The cost for building materials of the physical test stand structure will be about $10k. The cost for the high-speed electronics in the test stand will be about $35k. Student travel and other incidentals $5k.*** |

Technical & Engineering Work

Explain the technical & engineering work that will be needed to complete this project.

|  |
| --- |
| ***This project will entail the following technical tasks:*** ***20% identification and purchase of high-tech communication modules******35% hardware design to mount and interface the communication modules******35% C level programming******10% design of prototype package*** |

Technical Standards/Specifications

Specify the technical standards/specifications, if any, that students should incorporate into this project. Standards/specifications such as those provided by the Society of Automotive Engineers (SAE), National Electric Code (NEC), Robotic Industry Association (RIA), etc.

|  |
| --- |
| ***Electrical schematics should follow typical IEEE standards.*** |

Technical Content and Required Expertise

Indicate which technical skills will be needed by the students, using the following rating system:

|  |  |  |  |
| --- | --- | --- | --- |
| 0 – None [Needed] | 1 – Small Amount | 2 – Moderate Amount | 3 – Large Amount |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mechanical Design | ***1*** |  | Instrumentation & Test Equipment | ***3*** |
| Mechanical Simulation | ***0*** |  | Electrical/Digital Design | ***3*** |
| Machining/Fabrication | ***1*** |  | Electrical/Digital Simulation | ***2*** |
| CAD | ***1*** |  | Electrical Wiring | ***1*** |
| CNC | ***0*** |  | Classical Control | ***0*** |
| CAM | ***0*** |  | Microcontrollers/Embedded Systems | ***3*** |
| Robotics Programming | ***0*** |  | C or other Programming | ***3*** |
| Robotics Simulation | ***0*** |  | General Software | ***3*** |
| Machine Vision | ***0*** |  | Mathematics | ***2*** |
| PLC | ***0*** |  | Fundamental Science | ***2*** |
| HMI | ***0*** |  | Other: | ***0*** |

Additional comments about technical content (optional):

|  |
| --- |
| ***This project is very heavy in CE/EE/EET*** |

Number and Type of Students Needed:

Estimate the number of engineering students from each discipline that will be needed.

|  |  |  |
| --- | --- | --- |
| **Number** | **Discipline** | **Reason students are needed** |
| ***1-2*** | Computer Engineering (CE) | ***Program in C and thoroughly understand communication and mathematics*** |
| ***1-2*** | Electrical Engineering (EE) | ***Same as above*** |
| ***1*** | Electrical Eng. Technology (EET) | ***Validate prototype via instrument testing*** |
| ***1*** | Manufacturing Eng. Tech. (MfgET) | ***Design small, lightweight packaging of electronics*** |
| ***0*** | Mechanical Engineering (ME) | ***N/A*** |
| ***0*** | Robotics Engineering (RE) | ***N/A*** |

Estimated Size of Work Area

Provide an estimate of the size of the work area needed for this project. Specify the estimated square footage along with any specific length requirements (such as you have a 10-ft. long conveyor so you need at least 12-ft. for one of the dimensions). Include the required ceiling height if greater than 8-ft is needed.

|  |
| --- |
| ***There are no specific size requirements for this project, but it is estimated to need about 100 square feet to have all the equipment connected together and perform the testing.*** |

Project Challenges

Briefly describe any challenges (technical or otherwise) you foresee in the project.

|  |
| --- |
| ***Having the test stand send 300 simultaneous signals is challenging but our engineers can provide assistance to the students in that area.*** |

Industrial Support

List the types of support, other than money and the industrial contact’s time, that your company will provide for the project.

|  |
| --- |
| ***The industrial contact will provide expertise in the area of high-speed electronic communication theory and high-speed electronic communication software algorithms. Several engineers within the company will provide expertise regarding high-speed electronic hardware. The company will also provide a C programming developmental environment and an extensive C communications library.*** |

Also list the types of support that your company will not provide for the project (if any). Successful projects will have support within your organization that have appropriate decision making authority.

|  |
| --- |
| ***We cannot provide any mechanical expertise in designing or building the physical structure of the test stand. The physical design of the test stand must be supported by LSSU.*** |

Legal Agreements

There are two legal forms associated with each project. *Form A: Agreement and Release* is to be signed by each student on the project. *Form B: Agreement* is to be signed by LSSU, your organization, and each student on the project. Both legal forms are attached to the end of this document. Please read them carefully.

Using the first set of checkboxes below, indicate whether your organization is able to sign them without modification or your organization wishes to modify them. Using the second set of checkboxes below, indicate whether or not your organization has additional forms to be signed. This is very important and needs to be determined before project acceptance. **Do not edit or sign the forms at this time; actual forms will be sent to you later.**

|  |  |
| --- | --- |
|  | **Forms A and B** |
| ⮽ | May be signed without modification |
| □ | Needs to be modified (please attach modified language) |
|  |  |
|  | **Additional Forms** |
| ⮽ | Are not needed |
| □ | Are needed (please attach additional forms) |
| □ | Non-disclosure agreement (NDA) will be needed (please complete section below) |

NDA Contact at company (if an NDA is required)

If an NDA is needed, the discussions for this will need to be initiated at the time of the proposal submission with a goal of having the NDA signed by both parties by September 30.

|  |  |  |  |
| --- | --- | --- | --- |
| Name |  | Phone |  |
| Title |  | Email |  |

Contact Information

Provide your information and the information of the likely industrial contact for the project. If you will be the industrial contact for the project or if this person has yet to be identified, just leave the latter part blank. The longer the Industrial Contact has been at your company, the more likely your project will be successful and be selected.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Person Submitting Proposal |  | Likely Industrial Contact |
| Name | ***Rufus Leaking*** |  | ***Sharon Shalike*** |
| Title | ***Senior Design Engineer*** |  | ***Senior Design Engineer*** |
| Phone | ***734-123-4567*** |  | ***734-123-4568*** |
| Email | ***rleaking@vivicom.com*** |  | ***sshalike@vivicom.com*** |
| Tenure | ***17 years*** |  | ***8 years*** |

|  |  |
| --- | --- |
|  | Company Mailing Address |
| Attention | ***Sharon Shalike*** |
| Company | ***Vivicom*** |
| Street | ***123 Fake Street*** |
| City | ***Ann Arbor*** |
| State | ***MI*** |
| Zip Code | ***49783*** |