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TITANS Strategic Intern Pipeline: Best Practices and Resource Guide

Kathryn Hanselmann, Tommie G. Kuykendall, Cherri Porter, and Kathy Robertson

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185

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Kathryn Hanselmann, Tommie G. Kuykendall, Cherri Porter, and Kathy Robertson
Org. 05629
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185

Abstract

This guide is a compilation of best practices and resources from three of Sandia's leading strategic intern programs which make up the Technical Internships to Advance National Security (TITANS) program. TITANS consist of the Center for Analysis Systems and Applications (CASA), the Center for Cyber Defenders (CCD), and the Monitoring Systems & Technology Intern Center (MSTIC).

ACKNOWLEDGMENTS

We would like to acknowledge the hard work and dedication of the following people for their efforts in making the vision of the TITANS program into the success it is today. Thank you to Lori Belcher, Ben Cook, Marcus Chang, Vantrice Fuentes, David Gallegos, Carmen Good, James Peery, Cindi Reyes, Karen Shanklin, and Mike Skaggs.

Contents

FIGURES

TABLES

NOMENCLATURE

CASA	Center for Analysis Systems and Applications
CCD	Center for Cyber Defenders
DOE	Department of Energy
IC	Internship Coordinator
MSTIC	Monitoring Systems & Technology Intern Center
SIP	Student Intern Programs
SNL	Sandia National Laboratories
TITANS	Technical Internships to Advance National Security

1. INTRODUCTION

This guide is a compilation of best practices and resources from the Technical Internships to Advance National Security (TITANS) program which consists of three of Sandia's leading strategic intern programs, the Center for Analysis Systems and Applications (CASA), the Center for Cyber Defenders (CCD), and the Monitoring Systems & Technology Intern Center (MSTIC). These intern programs serve as strategic talent pipelines in their areas that provide students from the high school to PhD level an opportunity to work with Sandia staff on national security related problems. In addition, the program gives laboratory management the opportunity to evaluate students' potential for permanent positions after finishing school.

While Sandia has numerous strategic intern programs, this guide focuses specifically on the TITANS programs. Many of the elements that make these intern pipelines successful could be applied to virtually any strategic intern program. Some additional key elements of each program are highlighted below.

1.1. What is CASA?

CASA provides students the opportunity to develop next-generation software systems for compelling national security missions. Their interns work on our nation's most complex, challenging data analysis problems. The program primarily targets top "difficult-to-attract" Computer Science and Computer Engineering students. It also provides a strategic hiring pipeline for full-time, CSMP, and MFP positions.

1.2 What is the CCD?

The CCD aims to train and develop security researchers in the area of cyber and information security. The program connects students with Sandia information experts through mentoring and fosters students' appreciation for the unique challenges in providing cyber security for high-consequence systems. Our mission is "To be the leading national institution for training and motivating information technology professionals for cyber defense"

1.2 What is MSTIC?

MSTIC is a talent pipeline to develop the next generation of leading innovators in the area of remote sensing technologies. They work in a collaborative environment pairing students with high caliber technical mentors. The program offers an opportunity for students to work on a wide variety of Sandia projects focusing on exceptional service in the national interest

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2. KEY ELEMENTS

The ability to attract exceptional student candidates, provide them challenging and impactful work and mentorship in a dynamic, supportive environment are essential ingredients for success. The following table highlights a number of key elements that support a successful program. A short list of best practices are captured for each element along with the benefits they provide the program. Relevant resources that can be found elsewhere in this guide are referenced where applicable.

Table 1. Key Elements of Strategic Intern Programs

Component	Best Practices	Benefits	Resources
Intern Program Coordinator	• Handles oversight of intern program • Serves as a resource and single point of contact for interns • Maintains constant contact with interns • Allows program to grow organically	• Avoids micro-management • Less confusion, allowing interns to focus on technical work • Handles logistics so mentors can focus on projects and technical mentoring • Reduces manager's time commitment to program • Avoids excessive administrative overhead	
Mentors	• Have younger staff including program alumni serve as mentors, project leads and social coordinators • Devote time to technical mentoring • Allow program coordinator to handle logistics	• These staff members know what it's like to be an intern and what information is helpful and interesting to interns • Program alums understand the institute's goals • Interns are often more comfortable going to a younger staff member with questions and	

Component	Best Practices	Benefits	Resources
		concerns • Using intern program alums as mentors ensures the program is self-sustaining	
Project work	• Ensure students are involved with real, meaningful projects • Determine projects in advance • Notify staff of intern's arrival ahead of time so they can line up projects for interns	• Students get to work on unique challenges associated with national security problems which cannot be matched elsewhere • Projects are meaningful and have real world application • Allows students to make the most of brief internship period • Links educational values to corporate values • Provides sustainable funding for intern program	• Project Proposal Form
Recruiting/hiring	• Use intern program as a recruiting pipeline • Use intern program as a "ramp-up" period with goal of hiring successful candidates • Make connections through students to universities and professors • Intern program is more effective than short recruiting trips at selling students on	• Staff and management can evaluate students as potential employees while students evaluate Sandia as a potential employer • By the time they come on as full time staff, interns will already be familiar with Sandia's technical capabilities, work environment, and mission	• Flyers • Email interview template • Telephone interview template • Onboarding guide • Hiring process flowchart • Introductory Power Point

Component	Best Practices	Benefits	Resources
	the benefits of working at Sandia • Functions as a 10-week interview to evaluate students' potential	• Interns hired on as full time staff are more productive since they have prior experience working at the Labs • Interns are a high-quality, low-cost resource for the Labs • Interaction with students gives staff a perspective on which schools are focusing on certain areas of science and technology •	
Student Training & Education	• Give interns access to Sandia staff through talks, tours, presentations • Provide interns with state of the art technology • Student gains exposure to a professional R&D work environment • The student sets up their own workstations which can include a PC and Linux boxes	• Intelligent, professional staff • Tours of Sandia facilities show students what we do • Learning about the work other Sandians do helps students discover their own areas of interest • Help get interns into the right department where they will be most productive • The latest technology is appealing to interns and gets them excited about work • Get interns involved with technology, allow them to explore interests	• Tours and tech talks for interns
Work	• Foster an open,	• Casual dress appeals	• TITANS

Component	Best Practices	Benefits	Resources
environment	relaxed atmosphere • Plan events outside of work • Plan tours of attractions in and around Albuquerque (esp. for interns from out of state) • Provide opportunities to network with other interns and staff	to students • Gives students the freedom to have a little fun at work • Outside events allow interns to mingle • Helping interns make the most out of their stay makes them more likely to return/pursue permanent employment with Sandia • Tours and outside events keep students energized	SharePoint Page and mailing list. • SIP Facebook Page
Work space	• Locate students together in an open, collaborative space • Provide common areas: conference area, beanbags, lounge area, white boards hung around space	• Facilitates cooperation and teamwork • Encourages socialization and development of professional and social relationships • Relaxed atmosphere appeals to students	• TITANS SharePoint Page and mailing list. • SIP Facebook Page

3. ESTABLISHING A STRATEGIC INTERN PROGRAM

3.1. Timeline

Effective planning is the first element that goes into setting up a strategic intern program. Organization in the early stages improves the effectiveness and success of the program later on. The following timeline (Figure 1) was adapted from MSTIC. CASA and CCD followed similar paths. It highlights the timeframe for setting up the strategic intern program in conjunction with hosting student interns for the summer.

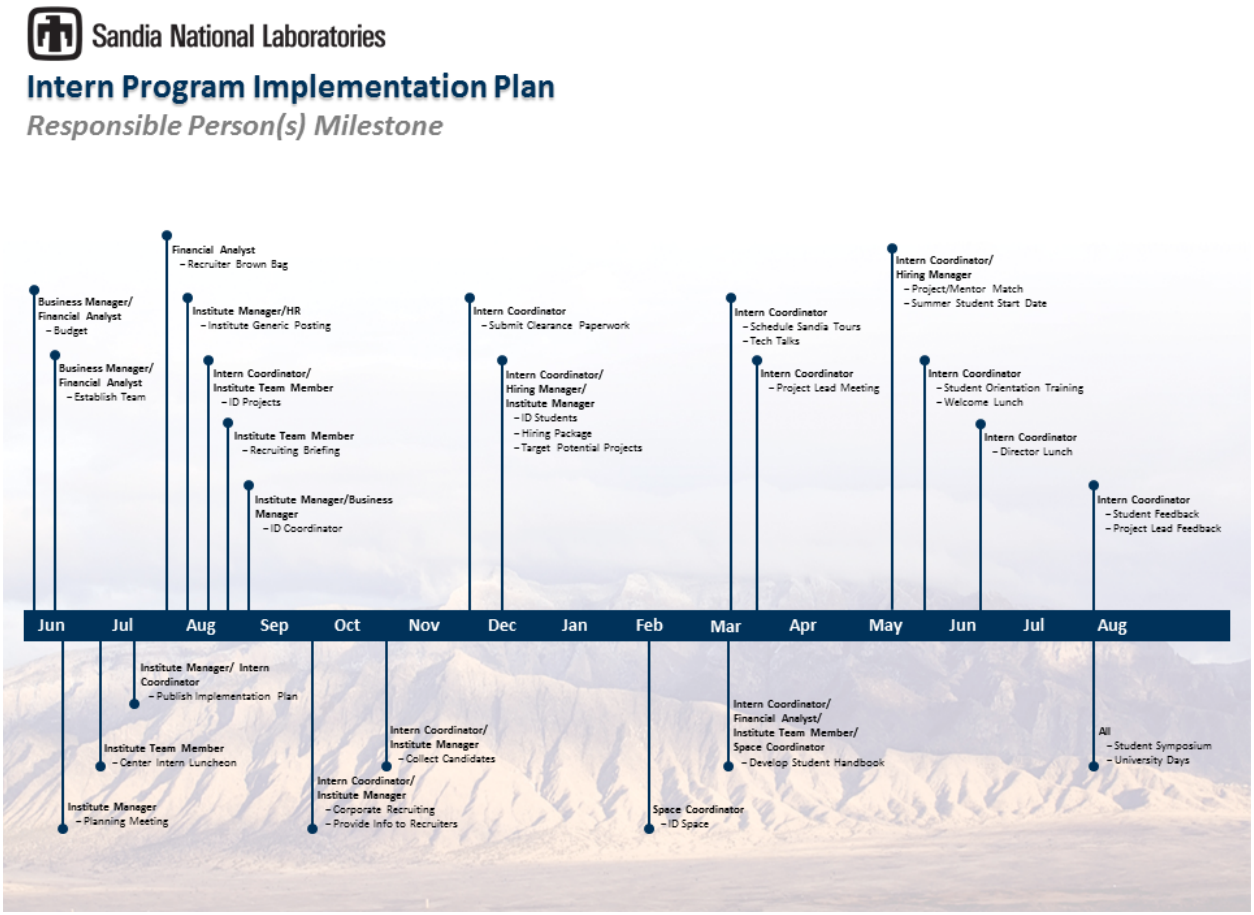


Figure 1. Timeline for Implementing Summer Strategic Intern Program.

3.1.1 Program Development Activities

The above chart gives the list of activities that might happen over the course of the year to both develop a strategic internship program and implementation of the program. This section will cover the activities specific to starting a strategic internship program in more detail.

When starting a program like this it is important to take some cues from the long term project management prospective. This includes determining if this type of program is right for your

organization. A determination needs to be made if the money and effort spent to create this program yield the desired outcomes for the hiring in your organization. Once that determination has been made then it is important to develop a comprehensive plan to get the program off the ground as well as being able to maintain from it year to year. The benefit of doing this will make the year to year activities become easier as the program matures.

Key areas to consider during the planning and implementation process:

- Identify Key Stakeholders
- Determine What These Stakeholders Need
- Metrics – How Will Success be Measured?
- Determine Key Members of Implementation Team
- Determine how many students
    - Space availability
    - Project funding available classified and unclassified – clearances are not guaranteed due to timing so must be considered
- Startup Funding Level Needed
    - Space setup – desk, chairs, power requirement, network requirements, HVAC, etc.
    - Computer equipment – computers, printers, cable management, etc.
- Build Good Relationship with SIP
- Ongoing Program Funding
    - Yearly facility refresh funding
    - Equipment replacement
    - Advertising and Recruiting

3.1.2 Hiring Activities

The hiring process is the most time consuming of all the processes and the most critical to keep on track. Developing this process is important. This process includes a lot of stakeholders to work with while also including other processes within it that cannot be changed. The following list of activities has gone through many changes over the years to ensure maximum benefit and success for the CCD. Figure 2 gives a timeline representation of these activities in order to give an idea of how much time it takes to accomplish each of these activities. Each intern program under TITANS has created their own process based on their program needs.

- Post Job
- Send Email to Former Interns with Posting Number
- Find Phone Interview Volunteers
    - Staff members that have had students in the past
    - Former student interns out of the TITANS program
- Review Applications Determine if Qualified or Not
- Send Email Interview to Qualified Applicants
- Setup & Conduct Phone Interviews
- Route Interview Notes, Resume, & Email Interview to Hiring Manager

- Move Applicants to Hire or Reject in HR System
- Make Offers & Send Rejections
- Send 1st Project Call
- Send 2nd Project Call
- Start to Submit Clearance Paperwork as soon as Student Accepts Position
- Send Final Project Call
- Project Lead Workshop
- Complete Hiring Process
- Onboarding
- Space Setup
- Project Matching
- Project Lead Calls Student
- WebCARS
- Arrival of Students
- Setup Computer
- Students Leave

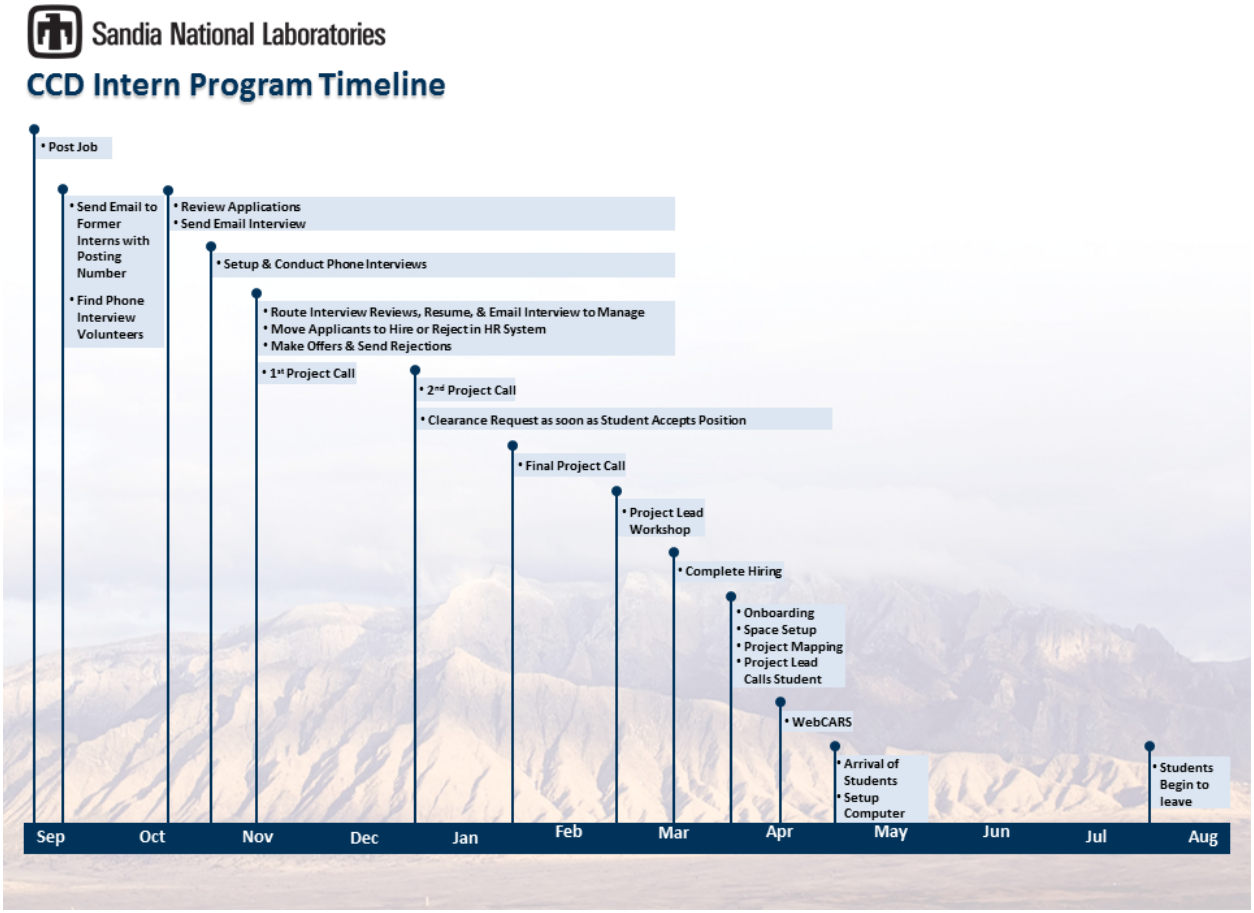


Figure 2. Summer Intern Activities Timelines

3.1.3 Summer Intern Program Activities

During the summer there are several other activities that take place in order to broaden the experience each student has while at Sandia. This ranges from team celebrations, tours of Sandia, friendly competitions, while other activities change yearly. These are arranged and scheduled by the Intern Coordinators prior to the students arriving and a calendar of events is located on the TITANS SharePoint site. This allows students to register for the events they would like to attend over the summer as some of the tours only allow a certain number of people on each tour. The following is a list of activities that occurred during the summer of 2015:

- Welcome Lunch
- Tours Throughout The Summer
    - C109 at Various Classification Levels
    - FARM
    - MESA Fabrication
    - Robotics Range
    - Thermal Test
    - Tracer FIRE Lab - RECOIL
    - Visualization Lab
    - Z Machine
- Technical Talks Various Topics
- Cyber Security Training
- Competitions Between CASA, CCD, MSTIC, and iSAFE
- University Days and SIP Symposium

One of the most important activities that are organized by the TITANS program is the welcome lunch. This is done within the first month of the first student arriving at Sandia. The goal of this lunch is to help the students get to know each other as well as getting to know the staff that is running the TITANS program. The goal is to make sure the students feel more comfortable as they transition to living in Albuquerque and working at Sandia. As part of the welcome lunch a presentation is given that covers common areas we have questions about such as where to eat lunch on base, reminding them that they are on a three month interview, who they can contact when they need assistance, etc.

The second most important is the University Days event which is held in conjunction with SIP Symposium. University Days is an event hosted by the TITANS Intern Program. The purpose of this is to invite and host faculty members from universities that Sandia has focused recruiting activities to get student interns. This allows faculty and Sandia staff to come together to discuss recruiting opportunities, research collaboration opportunities, as well as just build relationships for many types of future activities. The event also allows faculty to get an idea of the diverse research and activities being conducted at Sandia through tours and tech talks. University Days is held in conjunction with the SIP Symposium so that the faculty can meet and interact with students from their universities as well as others from across Sandia to see what they have worked on over the summer. The TITANS coordinators work closely with SIP to make sure that the activities from both of these events align well so that the students and faculty get the maximum benefit of the concurrent event.

The SIP Symposium allows the students to present posters that illustrate what they worked on while at Sandia giving them experience in preparing posters as well as presenting them. It also allows them to see what their peers are working on at Sandia. The faculty being hosted, as part of the University Days, may attend this event along with staff from across the labs.

Once you have a program set up, it's important to get the word out so that prospective candidates can find you and recruiters can offer more specific information about your program. One way to do this is to reach out to Sandia's extensive technical recruiting population. They will need support tools such as external web sites and printed flyers that can be handed out at recruiting events (Figure 2). Flyers should highlight the things that differentiate Sandia internships: real project work and national security impact. Eligibility requirements of your program and steps to apply for prospective candidates should also be included. Listing contact information for the intern program coordinator and the program manager is also a good idea. Keep it simple; your goal is to entice students to want to learn more and apply to your program if they feel it is a good fit.

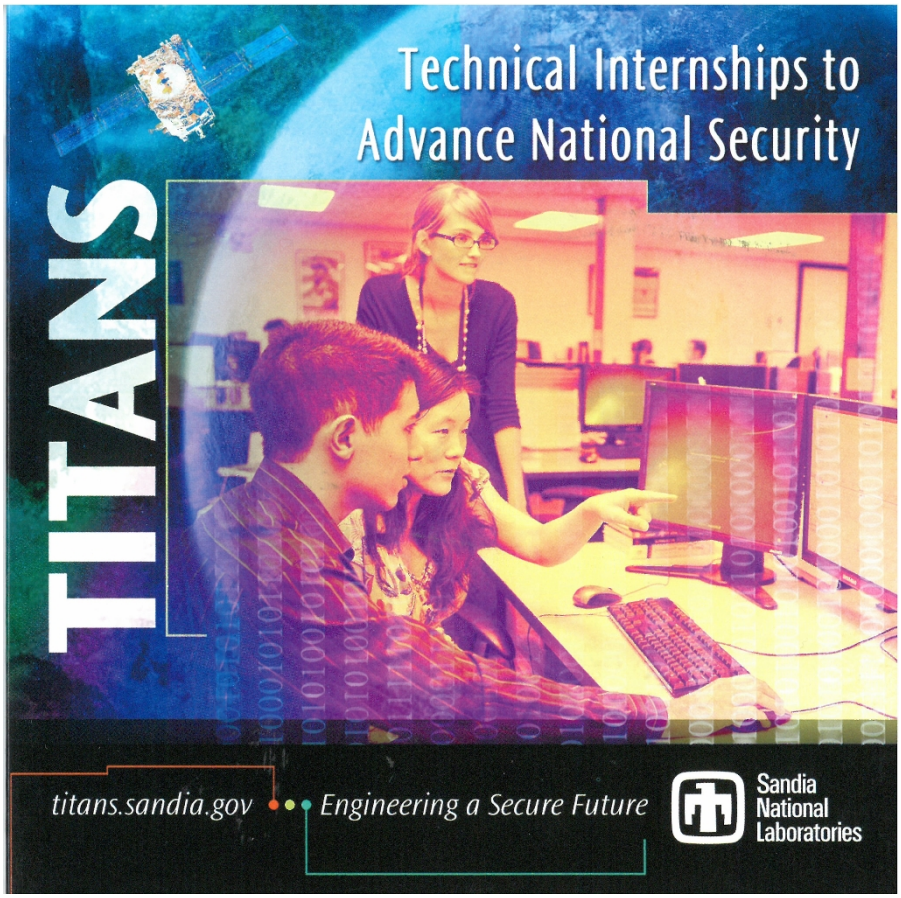


Figure 3. Example Tri-Fold Brochure.

In addition to printed brochures, an external webpage (Figure 4) is an effective tool for getting the word out about your program. You can include a link to this page on any handouts so candidates can easily find more information on the program. This site can include more

information on how to apply, timelines, details on the intern program and its focus areas, and open postings or a link to Sandia's career site.

Figure 4. TITANS External Website.

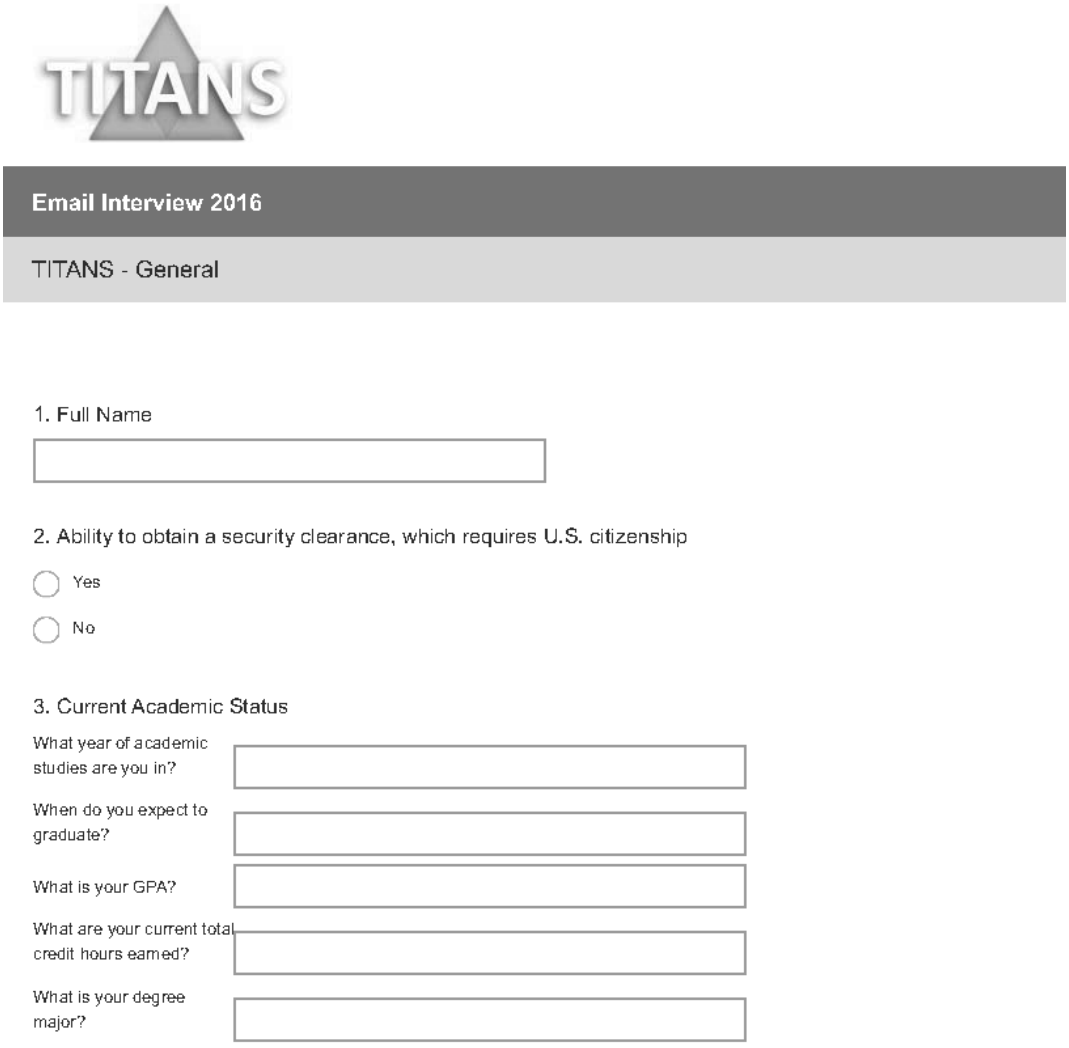
3.3. Hiring the right talent for your program

Strategic intern programs are designed for specific types of students, focusing in specific areas of study in support on Division 5000's strategic hiring plan. The first step in this process is to create job postings for each intern program that outlines the degree and background needed to succeed in each program. Each program would need to have a posting for each stage in school the students are in high school, undergraduate, and graduate. The CCD is the only program currently hiring high school students.

The Intern Program Coordinator will begin reviewing the applications and resumes submitted to each of their postings. After reviewing the students resume an email interview form, similar to Figure 5, is emailed to them to complete. This form allows the student to tell us more about

themselves, their interests, and their skill set. They are asked to rank themselves on various computer hardware, tools, programming languages and other industry skills that apply to a particular program.

3.3.1. Applicant email interview form: Example shown from CASA



Email Interview 2016

TITANS - General

1. Full Name

2. Ability to obtain a security clearance, which requires U.S. citizenship

- ◯ Yes
- ◯ No

3. Current Academic Status

What year of academic studies are you in?	
When do you expect to graduate?	
What is your GPA?	
What are your current total credit hours earned?	
What is your degree major?	

4. Skills and Interests

What do you consider to be your three best skills or assets?

What would your ideal project be (roles and responsibilites, team environment or individual projects, large or small projects, etc.)?

What technical areas are you particularly interested in?

Are you interested in pursuing your MS or PhD? If interested, what degree fields have you considered?

Email Interview 2016

CCD - Skills and Abilities

On a scale of 0 to 5 (0 = no knowledge, 5 = highest knowledge), please rate your level of expertise in each of the following categories.

5. Computer Hardware

	0	1	2	3	4	5
FPGA	◯	◯	◯	◯	◯	◯
Low Level Programming	◯	◯	◯	◯	◯	◯
Verilog	◯	◯	◯	◯	◯	◯
VHDL	◯	◯	◯	◯	◯	◯
X86 Assembly	◯	◯	◯	◯	◯	◯
Digital Circuit Design	◯	◯	◯	◯	◯	◯
Communication Bus Protocols (I2C, 2-Wire, SPI, SMBus, JTAG, etc.)	◯	◯	◯	◯	◯	◯

6. Operating Systems

	0	1	2	3	4	5
Linux	◯	◯	◯	◯	◯	◯
Windows	◯	◯	◯	◯	◯	◯
Mac OS X	◯	◯	◯	◯	◯	◯

7. Tools

	0	1	2	3	4	5
IDA Pro	◯	◯	◯	◯	◯	◯
Log Analysis Tools	◯	◯	◯	◯	◯	◯
OllyDbg	◯	◯	◯	◯	◯	◯
SecurITree	◯	◯	◯	◯	◯	◯
SysInternals	◯	◯	◯	◯	◯	◯
VMWare	◯	◯	◯	◯	◯	◯
WireShark Protocol	◯	◯	◯	◯	◯	◯

8. Programming Languages and Scripting

	0	1	2	3	4	5
Action Script	◯	◯	◯	◯	◯	◯
ASP	◯	◯	◯	◯	◯	◯
C	◯	◯	◯	◯	◯	◯
C++	◯	◯	◯	◯	◯	◯
C#	◯	◯	◯	◯	◯	◯
Caml	◯	◯	◯	◯	◯	◯
Django	◯	◯	◯	◯	◯	◯
Groovy	◯	◯	◯	◯	◯	◯
HTML	◯	◯	◯	◯	◯	◯
Java	◯	◯	◯	◯	◯	◯
java script	◯	◯	◯	◯	◯	◯
MatLab	◯	◯	◯	◯	◯	◯
Perl	◯	◯	◯	◯	◯	◯
PHP	◯	◯	◯	◯	◯	◯
Python	◯	◯	◯	◯	◯	◯
Ruby	◯	◯	◯	◯	◯	◯
Ruby on Rails	◯	◯	◯	◯	◯	◯
SQL	◯	◯	◯	◯	◯	◯
Tcl/TK	◯	◯	◯	◯	◯	◯
Visual Basic	◯	◯	◯	◯	◯	◯
XML	◯	◯	◯	◯	◯	◯

9. Other

	0	1	2	3	4	5
Linux Development	◯	◯	◯	◯	◯	◯
.NET	◯	◯	◯	◯	◯	◯
JVM	◯	◯	◯	◯	◯	◯

10. Networking Experience in general – (such as: setting up a network, configuring a network/server, knowledgeable of terminology – routers, switches, hubs and what they do…). Please explain your network experience for anything above a "3".

11. Any comments on ANY of the above topics? Or other skill areas that you have that might not have been listed?

12. The CCD program works solely on research projects with relations or ties to computer security. How did you hear about the CCD program? What is it that most attracted you?

13. CCD is part of the TITANS program, which also includes the Monitoring Systems and Technology Intern Center (MSTIC) and the Center for Analysis Systems & Applications (CASA). Each institute has its own technical focus. Have you applied to MSTIC or CASA internship postings?

- ☐ CASA
- ☐ MSTIC

Figure 5. CCD Email Interview

Figure 6 shows an example of a telephone interview template that can be used to ensure you hire students that will be a good fit for the environment in your program. The template below is used in interviewing potential CASA hires and each TITANS program has one tailored towards its program needs. The template is useful in that it:

- Allows the interviewer to obtain a personal perspective of each candidate
- Allows candidates to describe themselves in their own words
- Briefly tells candidates about the program and expectations
    - Location: Sandia National Laboratories, Albuquerque
    - Learning experience
    - Open collaborative work environment

It has been shown effective to permit staff members who were former TITANS interns to complete phone interviews with potential candidates because those staff members understand the dynamics needed to excel in the TITANS intern program.

Hello, I am _____.

I have you scheduled for a telephone interview right now. Is this still a good time for you?

We follow a particular format for our interviews, in order to keep them brief and to the point. This interview will mainly consist of me explaining and giving you information about the CCD and in turn asking you question about yourself. At the end of the interview, I will give you a chance to ask any applicable questions you may have regarding the CCD or Sandia Labs.

We have most of the information that we need from you in your resume and your email interview; however, we also would like your perspective regarding this possible internship. Since we can't have a face to face interview with everyone, we believe a telephone interview is the next best way to ensure that you have the opportunity to express your perspective.

Even though I have your resume and email interview in front of me, why don't we start by having you tell me a little bit about yourself in your own words.

_____

_____

The CCD is located in Albuquerque, New Mexico. Although Albuquerque is a large city in terms of population, it has a small town feel and offers a rich cultural experience. It is also ideal for the outdoor enthusiast.

Our program offers a variety of project topics. Additionally, you will be exposed to other technological advancements through peer projects as well as lectures and technical talks given by Sandia staff members that are experts in their areas.

If you are accepted for this internship, you will learn new things and have the opportunity to challenge yourself. You may also have the opportunity to assist the CCD in the future. In fact, we have found that former interns tend to reinvest their time and resources into improving the CCD.

First of all, you read that our lab is set up like a college computer lab and has an open environment setting. This summer we should have approximately 35 interns. Now, with this information in mind, I am going to ask you a series of questions.

Question #1 - What do you think are the positive aspects about working in this environment?

_____

Question #2 - What do you think are the possible negative aspects about working in this environment?

_____

Question #3 - Tell me about a large project or large team that you have worked on. More specifically,

What was the project? _____

How many people? _____

Were there problems? YES / NO
Explanation of problems:

_____

Were there successes? YES / NO

Explanation of successes:

_____

What was your role?

Question # 4 - Why did you apply to Sandia? OR Why do you think you would like to work at a national lab?

Question #5 - What is the last project that you did for fun?

Question #6 - What do you do for fun/hobbies?

Question #7 - What can you tell me about yourself that isn't listed on your resume?

Flexibility and Creativity:

Question #8 - Tell me about a time that you accomplished something by breaking out of the structured mindset and applied new and creative approaches.

Teamwork and Communication:

Question #9 - How do you communicate your point of view when you disagree with the views of the other teammates?

Problem Solving and Creativity:

Question #10 - What types of problems do you enjoy solving?

Question #11 - Tell me about a time when you had to manage multiple projects with conflicting priorities. How did you end up prioritizing?

Figure 6. Telephone Interview Template.

Staying organized is crucial in the hiring process. Several process documents illustrate the stages of hiring, from recruiting and interviewing to hiring and onboarding. Figure 5 gives a general representation of the hiring process. Each institute under TITANS may have some small variations on the figure shown here. It is color-coded to help identify the responsibilities of each party. The next set of flowcharts (Figure 6 and Figure 7) includes the criteria for applying to the CCD and illustrates the steps for hiring and onboarding interns. It is also color-coded to identify who is responsible for each step in the process.

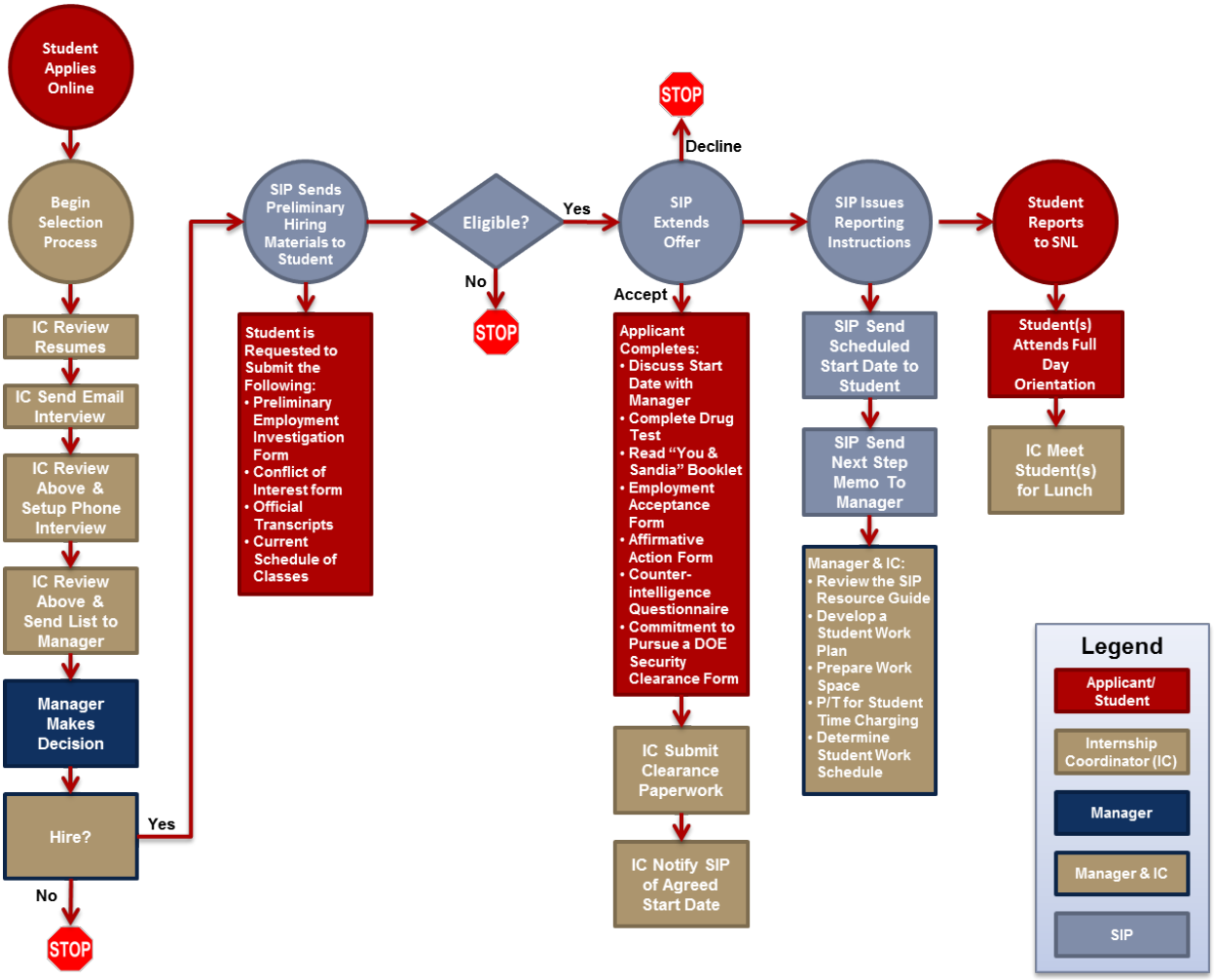


Figure 7. Hiring Process Flow Chart.

3.4. Planning work for your interns

Another key success factor of strategic intern programs is planning what projects students will work on prior to their arrival. Using a project template (Figure 8) provides an outline of each project along with information such as the number of students, required skills, and research areas of the project. This example comes from the CCD, but can be adapted to your area of focus. Using a project template helps match students with skills in a certain area to projects that utilize and develop these skills.

Center for Cyber Defenders
Project Proposal

Please return via email to ccd@sandia.gov ASAP

Project Name:

Time Frame:

Project/Task (if known):

Preferred Start Date:

Minimum Clearance:

Number of Students Needed
NOTE: Students are assigned in ½ time increments.

Your T-Shirt Size (Mens):

Would you be interested in a student majoring in math?

Project Description:

Project Lead Information:

Name	Org	Email	Phone

Required/Desired Skills, in order (#1 most important):

Hardware (FPGA, VHDL, Verilog, Etc.)	Tools (IDA Pro, Ocaml, OllyDbg, etc.)	Programming & Scripting Languages (Action Script, C++, Java, Matlab, Visual Basic, Etc.)	
1.	1.	1.	6.
2.	2.	2.	7.
3.	3.	3.	8.
4.	4.	4.	9.
5.	5.	5.	10.

Please list additional requirements or comments here:

Figure 8. Project Proposal Request Form.

3.5 Welcome information sent to interns upon acceptance

Once an intern has accepted a welcome email and TITANS information booklet is sent to them. The booklet contains information on New Mexico, housing, the SIP Facebook page, and what's involved in getting a clearance. Figure 9 is an example of the email sent out by the CCD along with the TITANS information booklet.

Welcome to the Center for Cyber Defenders! The CCD is one of the intern institutes at Sandia under the Technical Internships to Advance National Security (TITANS) program. We are excited that you've accepted your offer! You may be a little anxious about coming to sunny New Mexico for the summer, but it will be a tremendous learning experience! You will experience some of the best food around, beautiful sunsets, and an array of stimulating activities. You might want to check out this video to see what a great place Albuquerque is!

http://albuquerquetheunknown.blogspot.com/

The Sandia Labs Interns NM Facebook page serves as an excellent opportunity for you to begin networking with your fellow Sandia interns. I urge you to take advantage of the information posted on the Facebook site, as it will improve the quality of your internship experience. This link will get you to the Sandia site https://www.facebook.com/groups/491416414229514/ .

Attached is key information regarding security clearances, activities, and housing opportunities. If you need help finding adequate housing in Albuquerque, I can assist you in your search for a temporary home.

As many of you have already learned through your interview, we'll have a wide range of interesting and challenging research projects in the CCD this summer. You'll be assigned to at least one and probably two projects based on our understanding of your skills and interests. We'll try to give you a chance to review this assignment before you start so you can confirm we've made a good match. In addition to your project work, you will have the opportunity to tour several research facilities at Sandia this summer and hear about the exciting activities that Sandia Labs has been involved in over the years. The calendar on our CCD SharePoint site will be updated as tours and lectures are added.

Sandia is located on Kirtland Air Force Base, which offers a variety of outdoor recreation programs for all base employees. You will have access to the swimming pools, gyms, climbing gym, and more. They also offer rentals of adventure and sports equipment, camping gear, kayaks, etc. Trips, lessons, clinics, and classes are also offered and all events are on the calendar that's posted on their website. You may want to check it out at www.kirtlandforcesupport.com.

We also try to organize some extracurricular activities for students in our CCD and TITANS programs so you can explore New Mexico together. To help us determine which ones we should try to get a jump start on organizing, please let us know which of the following activities would be especially appealing to you.

One Day trips:

- Rock climbing
- Hiking in the Sandia Mountains
- Rafting and/or kayaking trip
- Mountain biking
- Horseback riding
- Other suggestions?

I will be submitting your paperwork for an L Clearance within the next week or so. Please read the DOE Clearances Steps and Processes in the attached TITANS Processes Information doc. You must complete a drug screening test within 60 days of completing your QNSP form. You are also required to do a drug test within 90 days of your start date. Depending on the timing, you may need to do two drug tests. Please don't hold off on doing one for your clearance, as it will delay the process.

Tommie and I work together as the CCD Program Coordinators. We will be your Point of Contacts (POCs) for the duration of your internship at Sandia. If you have any questions, please do not hesitate to contact one of us. Please let us know your start date. You will receive reporting instructions two weeks prior to your arrival. If you have any questions regarding the reporting instructions, please contact one of us for assistance. Tommie can be reached at tgkuyke@sandia.gov or 505-284-7818 and I can be reached at cporter@sandia.gov or 505-844-2788, or you can send an email to ccd@sandia.gov.

We look forward to your arrival!

Cherri, Tommie , and Neeta

Figure 9. CCD Welcome Email.

Figure 10. CCD Welcome Email.

4. BRINGING YOUR INTERNS ONBOARD

Once your interns have arrived, ensuring that they are given a proper introduction to the program and Sandia is critical to their success and satisfaction. It's a good idea to highlight the expectations and rules of the program and the Labs as soon as interns arrive, since Sandia is a unique and sometimes confusing work environment. This is also an opportunity to address administrative questions and get students up to speed so they can begin meaningful project work faster. The PowerPoint presentation shown below in section 4.1 is one example of how this information can be presented to students.

In addition to the resources available from Sandia's corporate Student Intern Programs (SIP) office, an online onboarding guide has been developed for the CCD (Figure 10). The complete guide can be accessed on the 5600 Talent Management SharePoint at: https://sharepoint.sandia.gov/sites/talent/SitePages/CCDonboarding.aspx . Contact Cherri Porter if you have issues accessing this site.

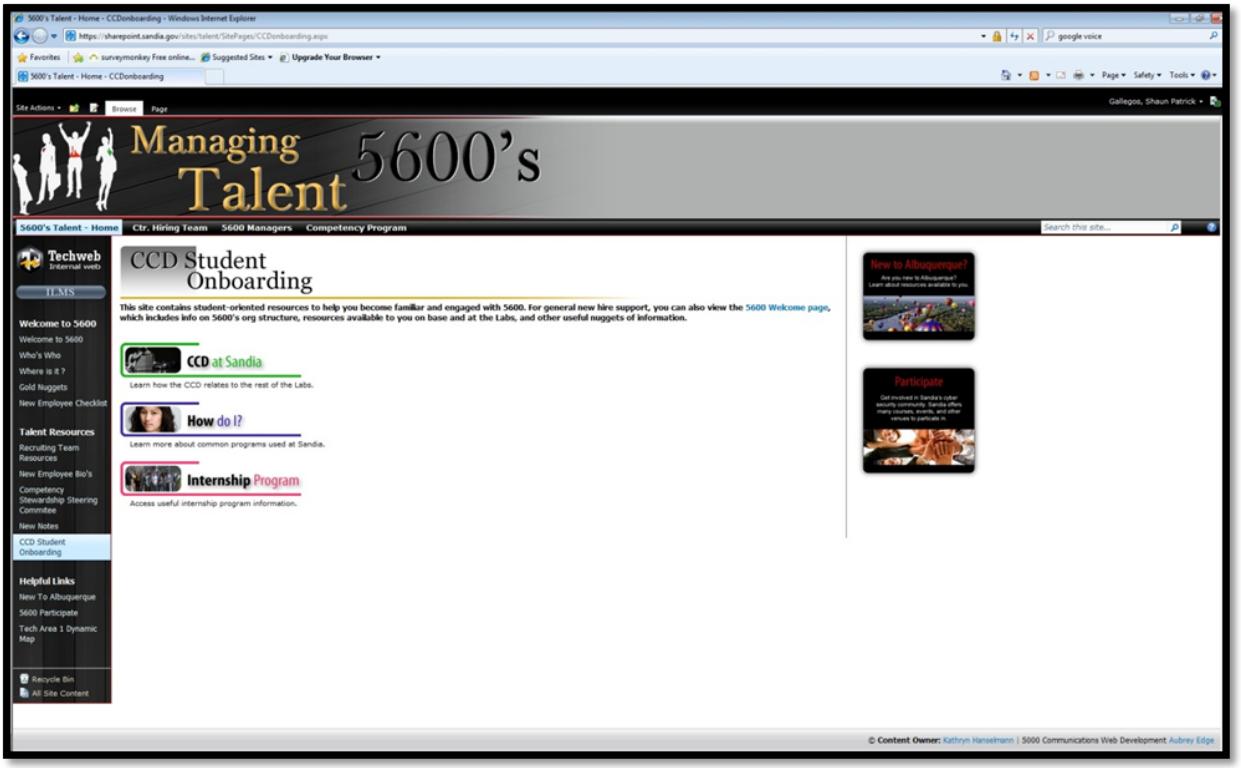


Figure 11. Online CCD Onboarding Guide Homepage.

4.1. CCD introductory PowerPoint presentation

Tips for surviving the summer

Don't Blow It!!!

Contacts

1. Abel Saenz – OAA (505) 284-6935
2. Cherri Porter – Prog. Coordinator (505) 844-2788
3. Tommie Kuykendall – ASA (505) 284-7818
4. Neeta Rattan – CCD Manager (505) 284-7754
5. Han Lin – TITANS Manager (505) 844-1441

Living in NM

- NM is a beautiful place and has some great opportunities to explore the outdoors. If that is your thing get involved! If it isn't propose a new activity.
- How enjoyable your summer is, is completely dependent on how involved you are.

Fun Stuff To Do

- Local
  - Soccer, golf, rock climbing, potlucks/BBQ, Kelly's, movies, music, Isotopes games, biking…
- Away
  - Carlsbad Caverns, White Sands, Grand Canyon, Roswell, Ruidoso…
  - River rafting, backpacking…
  - Blackhat/Defcon July in Las Vegas

How to ruin your summer

- Remember that your summer internship is basically a three month job interview.
  - It only takes one project lead walking in while you are on a nerf shooting rampage to ruin your chances of getting hired.
  - BE PROFESSIONAL – At any time project leads, managers, directors, ES&H personnel could walk in. Just because you don't recognize them doesn't mean you should engage in non work related activities.

Cyber Securities Roles

- Waste Fraud and Abuse (WFA) analysis
- Electronic Discovery for litigation support
- Incident Response
  - Malware analysis
  - Cyber incident reporting

Cyber Responsibilities

- **Sandia Restricted Network (SRN) is available at every desk**
- **This is a privilege so don't blow it!**
- **Monitored by Cyber Security directly**
  - So, charge the time you work and don't use Sandia resources for excessive personal use.
  - Security is YOUR responsibility be aware of your cyber environment

BAD Behavior Examples

- **Downloading drivers from a foreign country**
- **Incidental use abuse!**
- **Not paying attention to where you are going on the web. Stranger Danger!!**
- **Assuming the first link on Google is safe**

Everything I Wish I'd Known From Day 1 at Sandia

A List of Useful Facts

Timesheet

- You can manage your P/Ts by setting up a Project/Task Profile for each
  - Button is located in the upper right corner of timesheet page
- Timecards are a sign of "Operational Excellence" to our upper management
  - Your manager can't submit their timecard until you've done yours
  - You have to bring doughnuts if you miss a timecard…plus you don't get paid on time

Free Services

- There are a few free gym and exercise class options on base provided by Sandia and courtesy of the Base Commander
  - Corporate Fitness Facility in Bldg. 956
  - Fitness Classes Offered by Sandia https://hbeupdate.custhelp.com/app/answers/detail/a_id/2515
  - Base Gym
  - Discounts on Defined Fitness

Free Services

- Medical is free for occasional use
  - If you start feeling ill at work, you can go to medical
- SERP has a lot of discounted or free stuff
  - Tram tickets
  - Isotope tickets (select nights)
  - 700 free DVDs on loan
  - Bus pass discounts

Dress is Casual

- And I mean *really casual*
  - Staff members will wear flip-flops, crocks, t-shirts, and shorts
  - Jeans are perfectly acceptable
  - Will Atkins often looks like he's at a day spa
- Remember that you are here to make a good impression
  - Appropriate dress shows you are taking the opportunity seriously

Everything Has a Website

- Websites are usually unadvertised
- You'll need a crypto card to access most of them externally
  - Webmail.sandia.gov
  - Timecard.sandia.gov
  - Anywhere.sandia.gov
  - NWIS, Map-o-Matic, WebCARS
- Sandia's TechWeb internal search is useless
  - The "Alphabet Buttons" are much more useful

Interacting with Sandians

- Sandians can have some interesting idosyncrosies
- Meeting someone who is socially awkward yet technically brilliant is extremely common at Sandia
- If you have trouble interacting with someone, remember that technology and data are almighty to Sandians

Everything I Wish I'd Known From Day 1 at Sandia

Working with OUO

What is Official Use Only (OUO)?

- **Official Use Only (OUO) information is certain unclassified information that may be exempt from public release under the Freedom of Information Act (FOIA) and has the potential to damage governmental, commercial, or private interests if disseminated to persons who do not need to know the information to perform their jobs or other DOE authorized activities. It is a "subset" of Unclassified Controlled Information (UCI).**

How to Handle OUO

- **You have legal obligations to protect OUO.**
- **You must maintain control of OUO in the CCD**
  - Hard copies – Lock OUO in a cabinet when not in use
  - Soft copies – Lock your screen, use encrypted volumes or Entrust to encrypt files.
  - Email – Use Entrust unless otherwise directed by your project lead.
  - Conversation – Be aware of Need-To-Know (NTK)

Information Lifecycle

- **Creation**
  - Where will you process the information?
- **Communication**
  - Who are you sending the information to and how should it be protected?
- **Reproduction**
  - Electronic copies, redacted reports, and backups
- **Storage**
  - Network storage, data servers, backups
- **Destruction**
  - Secure deletion, shredding, burn bags

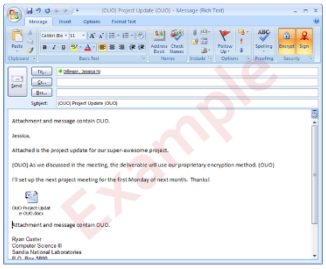
Use Common Sense

- **No set of rules for OUO information is all inclusive, so the best protection is your common sense.**
  - Watch what you say and always consider NTK.
  - Correct mistakes early on.
  - Put "OUO" in filenames of documents.
  - Discuss OUO only in an appropriate setting.
  - Control access to OUO using locked cabinets, passwords, and access control lists.

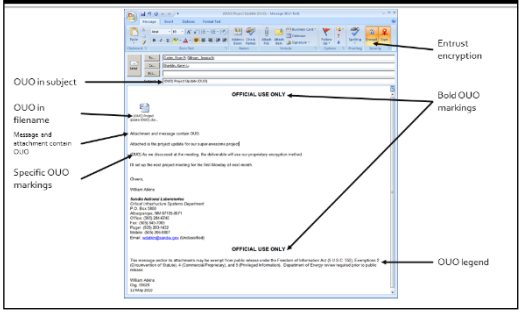
Common Pitfalls

- **Communication**
  - You email a document to someone, neglecting to mention/mark it is OUO, and they forward it on.
- **OUO in metadata, change tracking, and redacted reports**
  - You edit an OUO report with the MS Word "track changes" feature turned on, but you view it as a final copy. You've left the OUO in the metadata and anyone who reviews the changes will see it.
- **Lack of foresight**
  - You store OUO information with a tight NTK group on a network server, but you keep unencrypted copies on a USB stick and fail to securely delete them.

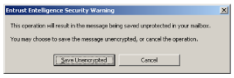
Examples



(Paranoid) Examples



Entrust Caveat



- Outlook periodically saves messages you are working on to your Drafts folder.
- When Entrust "Encrypt" button is pressed, Entrust asks if you want to save the draft unencrypted.
- Pressing 's', space, or enter will save the draft unencrypted.

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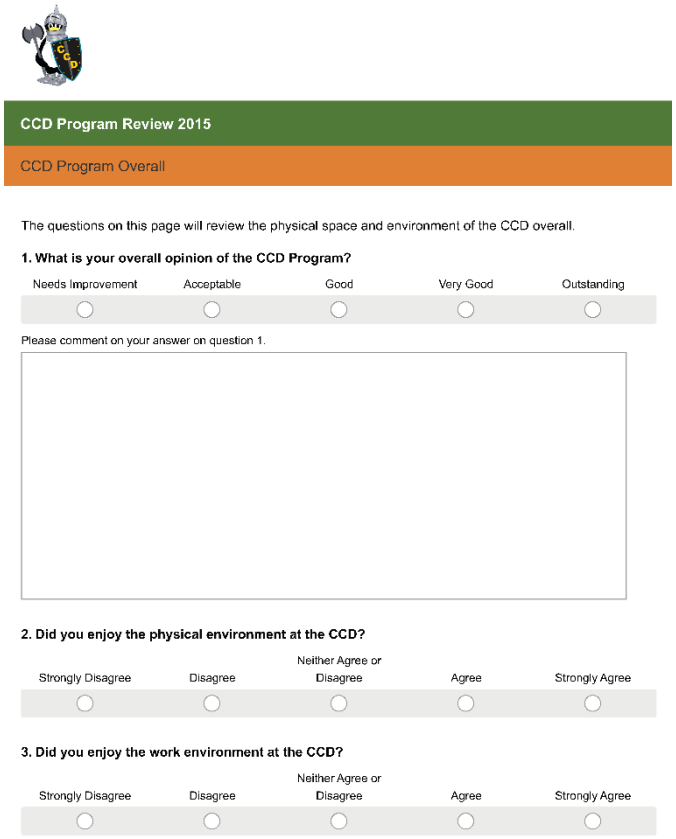
5. EVALUATION PROCESS

As part of our continuous improvement process evaluations are conducted for each intern program in TITANS. Informal evaluations are conducted during the summer with both the project leads and the students. The intern coordinators connect with the project leads at least three times during the summer to see how things are going. This could be through an email or in person when possible. The coordinator also speaks with the students during the summer to make sure they are having a good experience working at Sandia. The goal is to catch problems early so that the students and the project leads have a good experience.

In the last week of their employment students are asked to provide feedback on their general experience at Sandia via a survey. Figure 11 shows an example of the survey given by the CCD program using Survey Monkey. Each program under TITANS has their own version that fits their needs. The survey is completely anonymous in order to encourage the students to be honest. In addition to this questionnaire, an exit interview is also conducted so the student has an opportunity to discuss their experience as well. There is also a formal employee evaluation done by each project lead on each of their students (Figure 12). This helps the coordinator keep track of students that we may want to hire back the following summer, full-time after graduation, or in some cases keep employed on a telecommuting agreement.



CCD Program Review 2015

CCD Program Overall

The questions on this page will review the physical space and environment of the CCD overall.

1. What is your overall opinion of the CCD Program?

Needs Improvement	Acceptable	Good	Very Good	Outstanding
○	○	○	○	○

Please comment on your answer on question 1.

2. Did you enjoy the physical environment at the CCD?

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
○	○	○	○	○

3. Did you enjoy the work environment at the CCD?

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
○	○	○	○	○

4. Was the CCD support staff helpful and responsive when needed?

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
○	○	○	○	○

5. Would you recommend the CCD Program to other students?

Please comment on your answer to question 5.

6. Project 1

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Was this project a good fit for you?	○	○	○	○	○
Was the work you performed challenging and stimulating?	○	○	○	○	○
Did your levels of responsibility increase as your experience and abilities increased?	○	○	○	○	○
Did you have a good working relationship with your project lead(s)?	○	○	○	○	○
Was your project lead(s) available and responsive to your requests?	○	○	○	○	○
Would you recommend your project lead(s) for students next year?	○	○	○	○	○

List Project 1 Title and any Comments

7. Project 2 (if applicable)

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Was this project a good fit for you?	○	○	○	○	○
Was the work you performed challenging and stimulating?	○	○	○	○	○
Did your levels of responsibility increase as your experience and abilities increased?	○	○	○	○	○
Did you have a good working relationship with your project lead(s)?	○	○	○	○	○
Was your project lead(s) available and responsive to your requests?	○	○	○	○	○
Would you recommend your project lead(s) for students next year?	○	○	○	○	○

List Project 2 Title and any Comments

8. Project 3 (if applicable)

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Was this project a good fit for you?	◯	◯	◯	◯	◯
Was the work you performed challenging and stimulating?	◯	◯	◯	◯	◯
Did your levels of responsibility increase as your experience and abilities increased?	◯	◯	◯	◯	◯
Did you have a good working relationship with your project lead(s)?	◯	◯	◯	◯	◯
Was your project lead(s) available and responsive to your requests?	◯	◯	◯	◯	◯
Would you recommend your project lead(s) for students next year?	◯	◯	◯	◯	◯

List Project 3 Title and any Comments

9. Based on your experience this summer, are there any recommendations you would like to make concerning projects and project leads?

10. Please Rate Each Tour You Attended

	Did Not Enjoy	Enjoyed	Great	Awesome	N/A
C109 Tour	◯	◯	◯	◯	◯
Mesa	◯	◯	◯	◯	◯
Nuclear Museum	◯	◯	◯	◯	◯
Robotics Range	◯	◯	◯	◯	◯
Synthetic Aperture Radar	◯	◯	◯	◯	◯
Tech Training and Demo	◯	◯	◯	◯	◯
Thermal Test Complex	◯	◯	◯	◯	◯
TracerFIRE Tour	◯	◯	◯	◯	◯
Visualization Lab	◯	◯	◯	◯	◯
Z Machine	◯	◯	◯	◯	◯

11. Did you attend any of the tech talks/lectures?

◯ Yes ◯ No

12. What did you think about the tech talks/lectures?

◯ Useful ◯ Interesting ◯ Useful and Interesting

13. Should we continue having tech talks/lectures as part of our program?

◯ Yes ◯ No

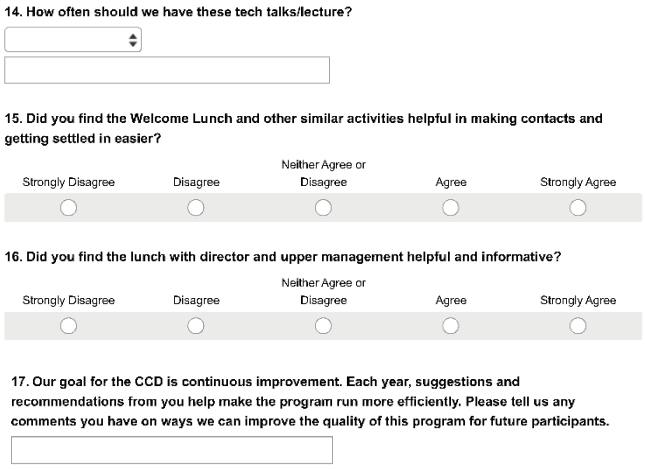


Figure 12. CCD Program Review.

Center for Cyber Defenders Student Evaluation

Summer 2015

Evaluation of: _____ **Evaluation by:** _____

Project Name: _____

Student's overall job performance	☐ Outstanding	☐ Very Good	☐ Good	☐ Acceptable	☐ Needs Improvement	
Please evaluate your student relative to the following attributes:			**4=Highest Rating;**		**1= Lowest Rating**	
a. **Quality of work and work ethics** (e.g., demonstrates good grasp of fundamental technical principles, exhibits good problem-solving/analytical skills, clear under-standing of work objectives and is accurate & thorough).			**4** ☐	**3** ☐	**2** ☐	**1** ☐
Comments:						
b. **Productivity** (e.g., produces quality & appropriate volume of work; seeks & uses resources effectively to accomplish goals, makes good suggestions/ improvements; uses time efficiently; and uses constructive feedback to continuously improve).			**4** ☐	**3** ☐	**2** ☐	**1** ☐
Comments:						
c. **Work habits** (e.g., time & attendance, meets schedules, attitude; care & use of equipment; follows appropriate work rules; stays on task; and adjusts to changing needs).			**4** ☐	**3** ☐	**2** ☐	**1** ☐
Comments:						
d. **Enthusiasm for the job** (e.g., knows & supports organizational goals; cooperative, constructive, positive response to new ideas/tasks; takes appropriate initiative; willing to learn new skills; teams effectively; works independently as required with little or no supervision).			**4** ☐	**3** ☐	**2** ☐	**1** ☐
Comments:						
e. **Communication skills** (e.g., shares information & ideas openly and regularly with others; initiates and gives feedback; expresses self clearly, both orally and in writing; and demonstrates active listening skills)			**4** ☐	**3** ☐	**2** ☐	**1** ☐
Comments:						
f. Would you recommend this student to be considered in the near future as a career employee for Sandia National Laboratories?			**Yes** ☐		**No** ☐	
Why or Why not?						
g. **Cyber Defender Program Improvements** The Cyber Defender program strives each passing year to improve the value of the program. What improvements can you suggest to make the program more successful?						
Comments:						

Figure 13. CCD Student Evaluation.

Each year after the last summer student has left the TITANS group comes together to evaluate the feedback provided by the students on each program. We then look to see what the common threads are from each of the programs and add the items we may want to consider for the next summer. We also compile a list of lessons learned in order to ensure we are moving towards continuous improvement. The next session will go into more general lessons learned over the life of the program.

In addition to these evaluations it is important to maintain up to date metrics on how many students come into the program, their background, schools attended along with other demographic information. It is then important to maintain how many students are offered full time internship opportunities after the summer through the school year. Also, the number of students that return for multiple summer sessions.

6. LESSONS LEARNED

The following points are a few lessons learned from existing strategic intern programs.

- 45 students may be too many for an open and collaborative atmosphere. Too many students in one place can lead to distractions.
- Avoid having too many students from one school. More than 4 students from the same school can lead to the formation of cliques. Aim for 2-3 at most.
- Start setting up the program early. Depending on the process, you should begin planning and implementation around January or February prior to the summer of your program start.
- Coordinate with corporate Student Internship Programs. They have a lot of great resources for interns and communicating with them ensures you don't duplicate efforts.
- Students need to be made aware of the resources available to them early on. If there are onboarding materials and other useful information located on SharePoint sites, links to these should be shared with students as soon as possible.
- Work on compiling a list of contacts for tours in your Center and across Sandia that would be interesting and relevant to interns.
    - Get information on the size of tour groups and any logistics needed before the tour. Some tours have size limits that you will need to consider depending on how many students you have. Also, some tours may require that participants hold a clearance.
    - Talk to center managers to get recommendations on some good tours for your interns.
- Make sure the call for projects goes out early
    - First call should go out in November
    - Two reminders should be sent up until March
    - Encourage staff to submit projects even if funding is tentative by indicating that it is tentative on the submission

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7. CONTACTS

The following individuals and groups are experienced in setting up and operating strategic internship programs. They are a great resource for questions regarding your internship program.

Cherri Porter
CCD Program Coordinator
T: (505)844-2788
E: cporter@sandia.gov

Courtney Brown
MSTIC Program Coordinator
T: (505)844-3801
E: laapoda@sandia.gov

Vantrice Fuentes
CASA Program Coordinator
T: (505) 284-0197
E: vfuente@sandia.gov

Tommie Kuykendall
TITANS Project Manager
T: (505) 284-7818
E: tgkuyke@sandia.gov

Corporate Student Internship Programs
Alix Acevedo
SIP Program Administrator
T: (505)845-9456
E: aaaceve@sandia.gov

Also, check out the corporate Student Internship Program SharePoint site:
https://sharepoint.sandia.gov/sites/Sandia_Recruiting/SIP/default.aspx


Sandia National Laboratories