



Building Quality Internship & Co-Op Programs for Steel-Related Companies

Understanding the Student Internship Perspective

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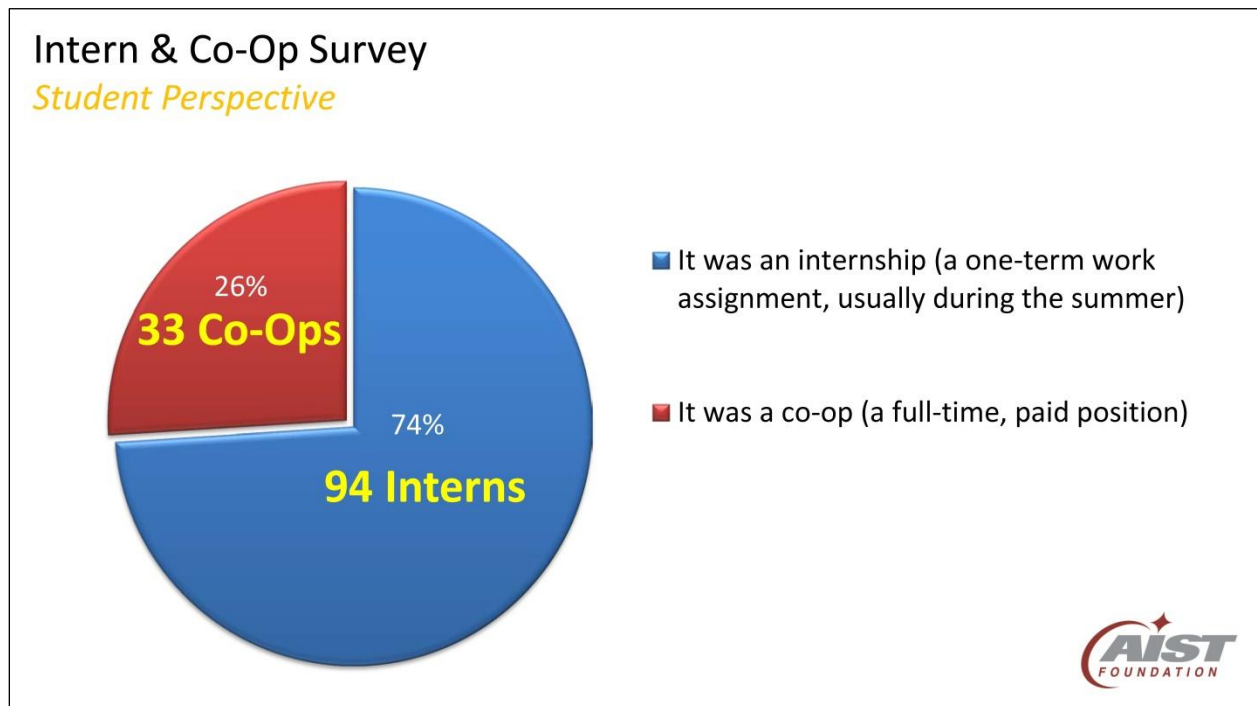
2019

Overview

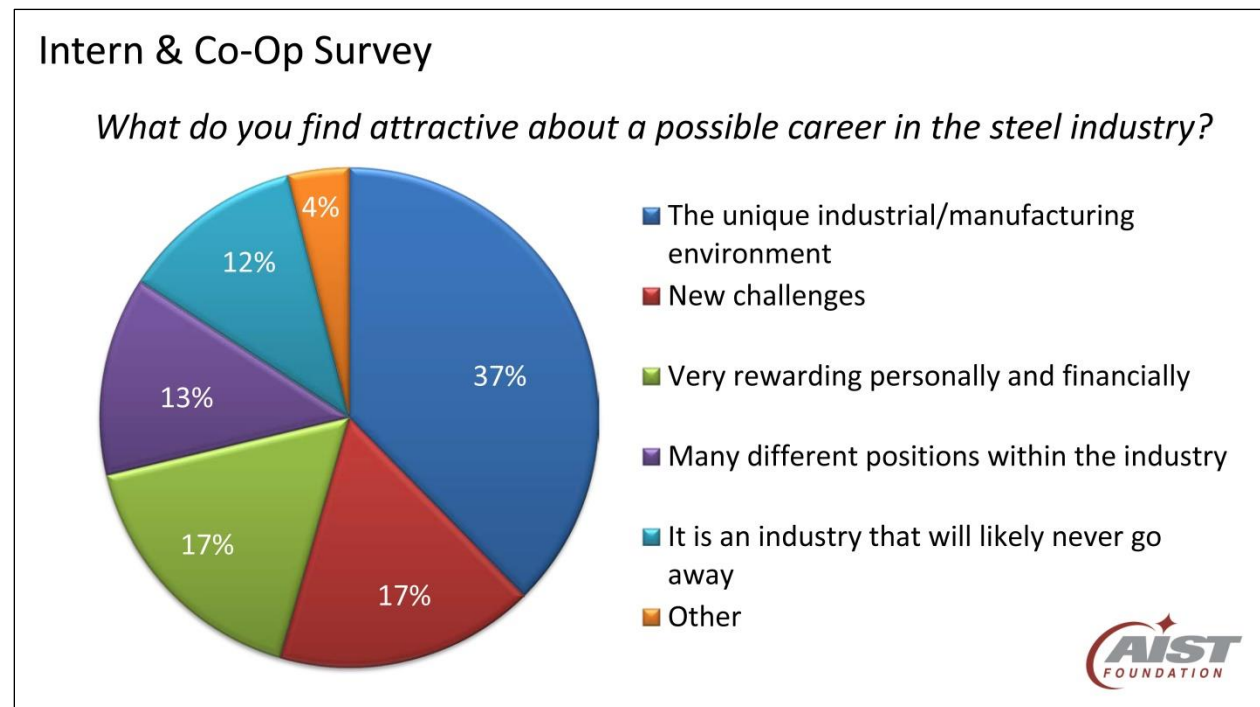
The Association for Iron & Steel Technology (AIST) strives to be a valuable resource for the steel industry, and to build professional networks for sharing information. Among these efforts, and supported by the AIST Foundation, AIST is endeavoring to better understand and share how to build quality internship and co-op programs for steel-related companies.

In August of 2019, AIST issued a survey to students that have been placed into internships by the Association. AIST also solicited past attendees of the University-Industry Relations Roundtable, including Human Resource contacts at steel-related companies and faculty members (who place interns with steel companies), to issue the survey to their students. The results of the survey are included in this report.

A total of 127 students participated in the survey:



What do you find most attractive about a possible career in the steel industry?



- With the chemical and physical flexibility of steel there is always an opportunity for advanced solutions to new challenges in this industry! With this, every new challenge presents the opportunity to discover a new capability of steel.
- Steel is cheap and versatile, and it will be a fun challenge to continue to squeeze profit out of a choked market
- I agree with the unique industrial/manufacturing/automation environment, but additionally there is currently a huge market for young engineers as many of the engineers in steel are retiring.
- New challenges, supporting manager and co-workers.

Is there anything that makes you apprehensive about pursuing a career in the steel industry?

- Potentially slow career growth due to internal competition and a bulk of people at management level.
- The locations of many steel mills are in the middle of nowhere
- Economic uncertainty with current tariffs and trade with China
- It is traditionally a very old school way of thinking within the steel industry, and I think it would be interesting to be involved with some more forward thinking individuals.
- Potential instability in steel manufacturing in America.
- Nothing

- No
- I think the amount of knowledge required to be successful in this industry is very high as there are many specific metallurgy things that one can only learn in the field.
- Modernization and market fluctuation
- no
- It is always changing and fast pace, which makes it a little nerve wracking, but also keeps it very exciting.
- No
- No, I believe there are many benefits to pursuing a career in the steel industry and do not see any reason for apprehension.
- Potential of frequent relocation from plant to plant
- Not sure
- It could be much the same day in and out
- I don't know much about it right now
- Not enough job growth opportunities
- The cyclic nature of it
- Environmental impact and sustainability
- I would say complacency with dangerous environments. I would definitely want to stay routinely involved in safety training to avoid this.
- The environment is fairly dangerous. The hours are very long in which we don't get paid. Toxic internal culture.
- No
- The people are generally against change
- Nepotism, monotonous work, uninteresting, abrasive workplace environments, poor learning environments
- Safety considerations of the company manufacturing the steel.
- Being a materials science and engineering major, the whole process of how steel is made is very interesting to me. It's also a place I can see my career advancing
- The ups and downs of the industry. It makes me worry for both working with limited funds and my job itself with layoffs.
- I enjoy the wide range of things you get to do.
- Finding a place to utilize my ceramic engineering background while still being challenged in new ways through the steel industry.
- Steel is an uninteresting material
- The cycle of highs and lows experienced in the steel industry
- Having basically no prior experience
- Having basically no experience with the industry.
- No, strong industry with lots of new challenges and ways for me to grow personally and professionally
- big industrial setting

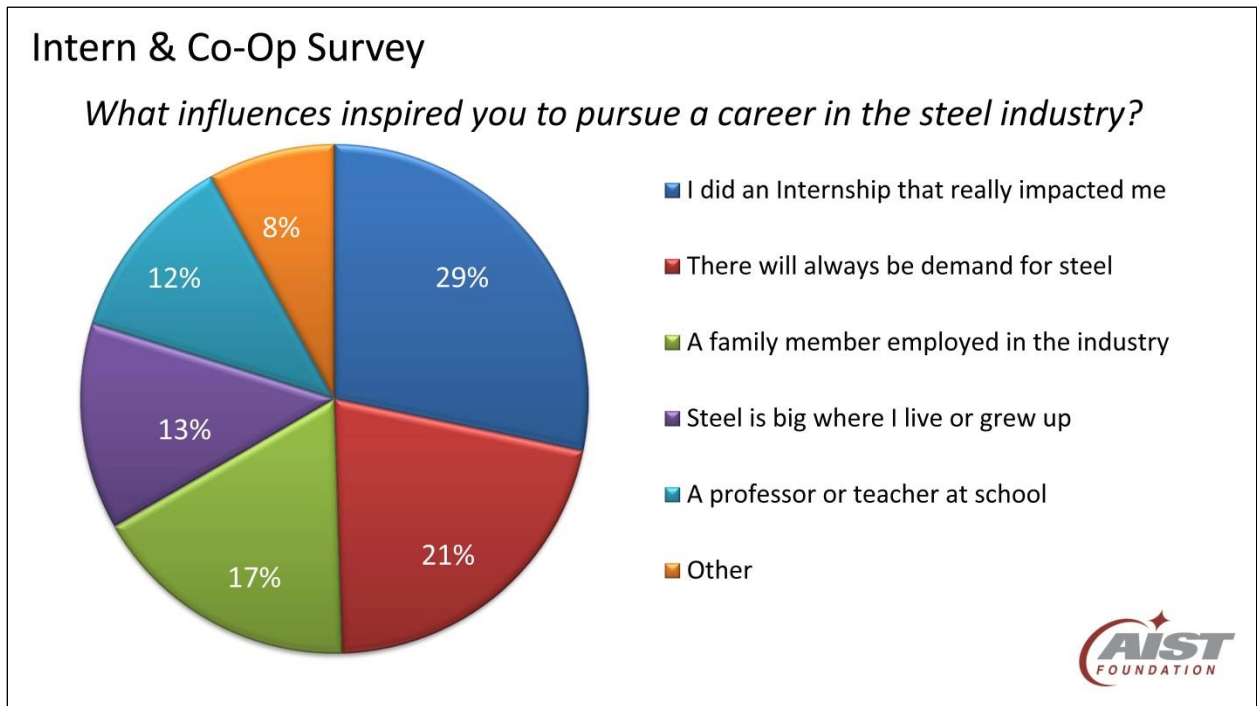
- The steel industry has times where they struggle more than most industries so job security would be a big concern.
- The only apprehension I have about pursuing a career in the steel industry is the environmental damage caused by producing steel.
- not Getting a job, not making enough money and not good hours
- Long term health concerns
- the time commitment (being on call after work hours)
- There is so much to know about the steel industry and I am unsure if I would like to work in steel.
- Older workforce and dangerous processes
- Location and pay
- The need for Ceramic students isn't very intense so the likelihood of many open jobs being available for ceramic students seems impossible.
- Being with only one material for the rest of my career
- Only working with one material my entire career
- Nothing makes me apprehensive. The only thing that would make me nervous is if the manufacturing process of steel would have to change due to environmental issues, but this would just be another challenge that I would be looking forward to overcome.
- N/A
- Sexism
- It is cyclical business.
- Nothing
- Fear that over the course of my career I will no longer be faced with new challenges
- I have been interning with Nucor and I have zero concerns with pursuing a career with them.
- The market and job security
- Economic crisis
- Current trade issues going on with our government
- No
- There is nothing at that makes me apprehensive about pursuing a career in the steel industry.
- Nothing, I am happy with work environment and culture.
- Safety
- It is an inherently dangerous work environment
- My grandparents own a small steel manufacturing place, so I want to pursue a job there.
- Lack of female presence (understandable due to the nature of the industry, but definitely a factor I would have to keep in mind).
- I am a structural engineer. I like to work more into steel rather than concrete that's why I choose this
- The lack of research and development across the industry particularly in microstructure and alloy development that other newer materials fields still have undeveloped.
- Depending on the type of work that is done, air quality inside of manufacturing facilities can be pretty poor.

- I want to be a nurse so this would limit me to occupational nursing
- No.
- n/a
- No, I have really enjoyed the challenges faced in this field.
- I'm not sure I could find an engineering job here
- The geopolitical situation and tariffs
- Fluctuation in steel market, lack of cutting edge computer technology, still using tried and proven techniques + technology for good reasons.
- The environmental impact that comes with being part of a large industry
- The availability of coal is scarce and the environmental impacts associated with using coal as a fuel source
- Work conditions in and out of the shop
- n/a
- Steel industry collapsing due to falling steel prices, mass lay offs, and the fact other countries are having larger steel companies for cheaper
- Poor pay compared to other industries.
- Upward movement
- No not really
- The necessity of being on-call / available regularly even after working hours; overtime expected
- The only thing that makes me apprehensive about pursuing a career in the steel industry is that I am not too fond of the options that are open for places to move to.
- No
- Not with SDI - there is a lot to learn, however there is also an incredible team of people that are willing to help you.
- No
- Being stuck in the steel industry when my passions lie within the automotive/aerospace industries
- The decline in steel use due to the development of other alloys (like magnesium) that could reduce steel demand.
- Because my father is a mechanical engineer. He had a huge influence on me.
- I do not wish to be in a position that only makes the steel. I prefer the different applications and how vast the usage of steel is.
- Job stability.
- The market
- The company's culture within the steel industry (as steel industry has been around for a long time, it has more older workforce, which creates a more traditional, conservative culture compared to the cultures that caters to the younger generations in other industries or startups)
- Health and Safety
- I feel like once you're in it, it's hard to get out of because it's so unlike any other industry
- No, I think this industry will be around forever.
- It seems that they haven't sorted out the environmental impact of steelmaking.

- Some aspects of the steel industry pertain to older conversions of plants to newer technologies which can be difficult for newer people in the industry who were never exposed to those older technologies.
- Health concerns regarding air quality within the plant
- No
- I am unsure about the future of the steel industry within the United States. While it may never 'go away', China is currently leading the world in steel production with the U.S. at a stagnation.
- Not really. The industry won't be going anywhere. The process and equipment won't change very much.
- No
- I work on the financial side of things, so nothing makes me really apprehensive about the steel side of things. If the company is in trouble of folding, then I would feel a bit of anxiety/stress about the company.
- It has aspects of energy engineering, but there are more prominent power industries out there.
- the work could seem really similar
- The unpredictability of the industry and the type of work being done.
- I am apprehensive about the remote locations that follow the steel industry. I want something closer to the city and something that creates a more urban environment. Sadly, steel never changes and is typically filled with 'lifers' who are against change. I want a company that encourages change
- The limitations of variety that may be caused by the scope of the industry.
- Political opinions.
- Maybe it's unique to my company but you don't have to be on one side to work in this industry. It was blatantly obvious what political side the company was on and became obnoxious.
- The current decline of the industry is a little alarming, but I'm sure it will recoup.
- China
- I would just be pursuing a career in accounting/finance and there is always a need for that in any company.
- Sometimes I worry about job security in the United States. It's secure, but it's hard to let go of the things I was always told growing up: "Oh it's a dying industry and you'll never have a job.". After a while you almost wonder is it actually true. However, I have learned through internships that there is still plenty of work to be done when it comes to steel!
- Environmental impact
- As a female engineer, I am most apprehensive about facing gender bias/discrimination in the work place.
- Location of steel mills.
- The current steel market, and particularly the portion of the market occupied by what ArcelorMittal makes. As of recent, the forecasts for the steel industry have not been looking too great according to management personnel. Also, I hear this is cyclical and natural for steel and I don't know if I want to enter an industry with such highs and lows.
- Industry is economy driven

- I don't know how constant a job in the steel industry would be over time. Is the industry like the oil & gas industry where there are large peaks of employment and low points with little work?
- Government regulation, tariffs, and reliability on international trade laws

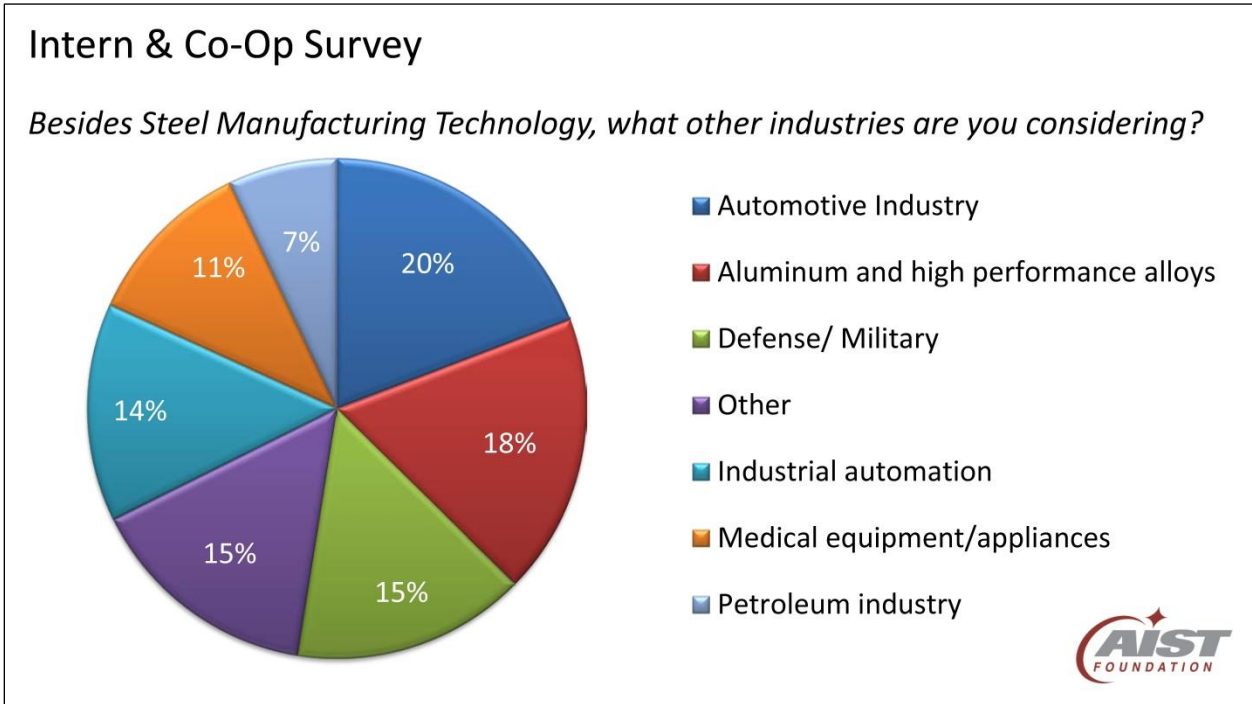
What influences inspired you to pursue a career in the steel industry?



- I don't know anything about steel so I thought an internship would help me better understand it.
- Steel Industry is pretty neat, but I would be down to see other industries that directly revolving around electrical engineering.
- [Steel is big in the area where I live or grew up] Fort Wayne, Indiana
- [Steel is big in the area where I live or grew up] Williamsport , Pa.
- [Steel is big in the area where I live or grew up] Pittsburgh, Pennsylvania
- [Steel is big in the area where I live or grew up] Fort Wayne, Indiana
- [Steel is big in the area where I live or grew up] Pittsburgh, Pennsylvania
- [Steel is big in the area where I live or grew up] Erie, PA
- [Steel is big in the area where I live or grew up] Fort Wayne, Indiana
- [Steel is big in the area where I live or grew up] Fort Wayne, IN
- [Steel is big in the area where I live or grew up] Belle Vernon, PA
- [Steel is big in the area where I live or grew up] La Porte
- [Steel is big in the area where I live or grew up] My parents and their family are from Pueblo, CO. It is home of the steel plant owned currently by EVRAZ, but used to be CF&I

- [Steel is big in the area where I live or grew up] Wisconsin
- [Steel is big in the area where I live or grew up] Pittsburgh, Pa.
- Inadvertently got involved in an engineering project for a steel manufacturer. Although I do find the field quite interesting now that I have been involved, I'm not sure if that's where I want to spend my career.
- Will not be pursuing a career in the steel industry
- This is an internship for me. They had a good location.
- Co-op term
- [Steel is big in the area where I live or grew up] Lake City, FL
- [Steel is big in the area where I live or grew up] Hamilton, ON
- [Steel is big in the area where I live or grew up] Hamilton, ON
- I started knifemaking at a young age and fell in love with steel and the heat treatment of it.
- Because I am not a concrete guy
- [Steel is big in the area where I live or grew up] Fort Wayne, IN
- I am really interested in metallurgy and this kind of work aligns very well with the steel industry!
- [Steel is big in the area where I live or grew up] Valparaiso Indiana
- Blacksmithing and a general interest in red hot metal.
- [Steel is big in the area where I live or grew up] Willowbrook IL
- The opportunity to live in a new area as well as to test out a field I wasn't sure I'd enjoy. Turns out I enjoy this work quite a bit.
- [Steel is big in the area where I live or grew up] Pittsburgh PA
- [Steel is big in the area where I live or grew up] Johnstown, Pa
- [Steel is big in the area where I live or grew up] Johnstown, PA
- [Steel is big in the area where I live or grew up] Midwest
- [Steel is big in the area where I live or grew up] Bartelso, IL
- A friend
- Only option
- Good experience for career
- [Steel is big in the area where I live or grew up] Schererville Indiana United States
- As apart of my engineering program, I was required to take a material science course and from there I totally fell in love with materials. Even today I stay up-to-date with advancements in the steel industry and how that can align with my ultimate goal of combining my knowledge of steel and business with improving my community
- [Steel is big in the area where I live or grew up] Pittsburgh, PA, USA
- it is what interested me into studying materials science
- [Steel is big in the area where I live or grew up] Hamilton, Ontario

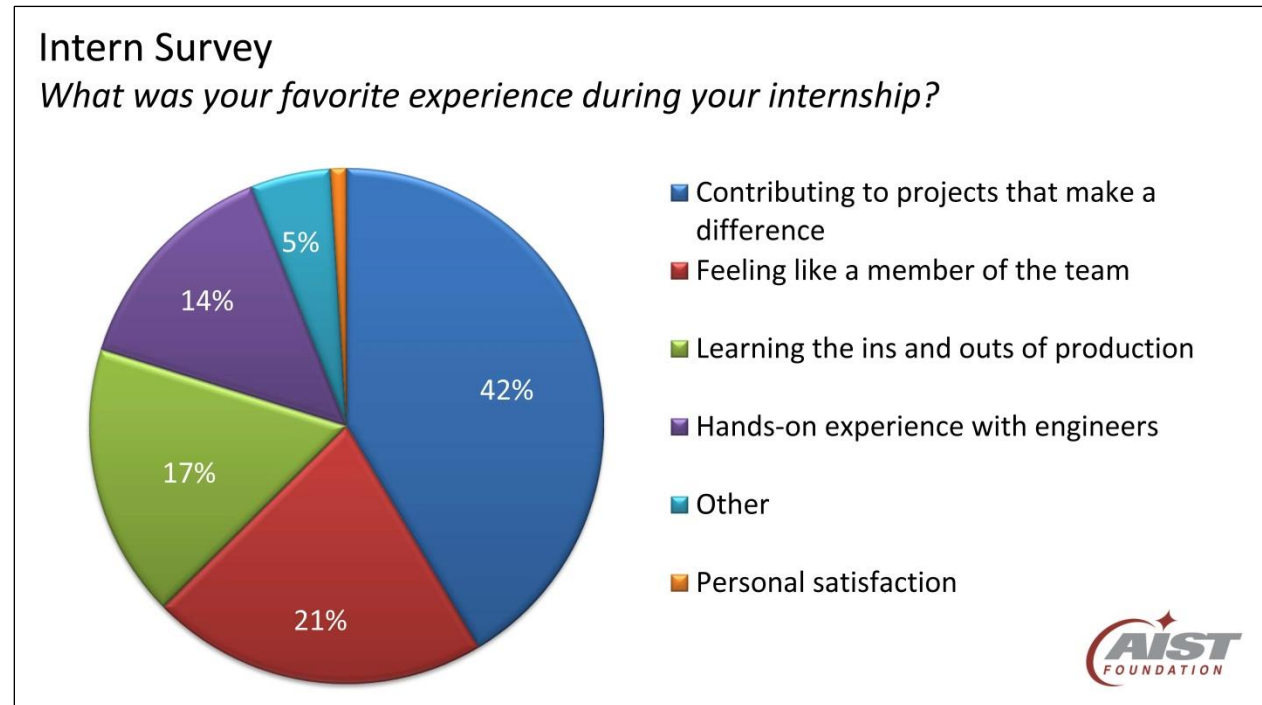
Besides Steel Manufacturing Technology, what other industries are you considering?



- Consulting
- Aerospace
- Civil engineering
- Not sure on the type of engineering
- Electronics, software
- Traditional ceramic and refractory industry
- Polymeric
- Construction
- Robotics
- Energy producing
- Glass and ceramics
- Renewables/Energy
- Finance
- Research and design in ceramic Refractories
- Semiconductor industry
- Consumer electronics
- Tech
- Taxation
- Hydraulics
- Chemical
- Metamorphic manufacturing
- Foundry
- Industries outside of industrial/manufacturing
- Semi conductors, electronic materials, and shape memory alloys
- Nursing
- Energy, hydro
- Commercial or residential construction
- Manufacturing design
- Power generation
- Technology
- Glass manufacturing and refractories
- Machining and additive manufacturing

INTERNS

What was your favorite internship experience?



What was your favorite internship experience (Other)?

- ALL
- Literally all of the above. Nucor lets you do EVERYTHING!
- N/A
- Can I say all of the above?

What was your least favorite internship experience?

- Any lulls when I didn't have work to do
- Not having consistent work.
- Having too much down time
- Not having enough meaningful work to do! But that's a given for internship work - there's not always enough to keep busy with.
- It's unrelated to the work, but it's just the heat.
- I really enjoyed the internship. If I had to choose my least favorite part it would be the amount of driving I did. It would have been nice to work a little closer to home.

- Designing parts for a customer and passing them through production
- There wasn't really any experience I disliked.
- Creating a career fair banner for the company I am working for. While it was necessary and important to the company, it was something I didn't really enjoy doing
- Happened to get a relatively limited number of projects
- Reworking a directory I made
- Working very early hours (I woke up at 04:30)
- Not knowing about anything that I was surrounded by
- Having to wait for assignments from my supervisor
- The grunt work
- Down time
- Limited access to social networking platforms. I needed to find videos and reference materials from school often that were connected to many blocked sites. Additionally, in locations where I did not have service, it was difficult to communicate with coworkers because many of the communication platforms I can use without service are blocked (such as Facebook messenger)
- All in all, this happened rarely, but did become slightly more noticeable and difficult when trying to find images for my presentation on my laptop
- Having to restart a project because of a mistake.
- Very little work available
- Most of it, apart from learning about the processes at a surface level
- Not realizing the boundaries of the intern in the beginning. I didn't realize this until half way through and was able to explore a lot more about mine and others work than previously
- The other interns made me feel unwelcomed and not a part of their group. I ended up finding a home and friends with the employees here before I did with those who were supposed to be beside me.
- I also had a project that was micromanaged and tedious. It didn't feel all that relevant and that made it all the worse.
- Not being able to work more than 40 hours per week.
- Not having enough to do
- Data Entry
- Downtime
- All of the training, but everyone has to go through that
- The internship experience was awesome when viewed from a technical standpoint but there needs to be work done with HR and communication. HR did not have effective communication with the interns leading up to the start date, managers were not notified

of our arrival date beforehand, events were not planned properly, overall the planning that went into the internship was sub par.

- not being able to tour other areas
- The lack of work available. No one in my department wanted help most of the time, so a majority of my last days were spent walking around the mill.
- The dirty conditions
- With steel, there were a lot of ups and downs in terms of workload.
- Occasionally got assigned to 'busy work'
- Not having responsibility or being treated like I wasn't a full time employee
- There were times when every day intern duties were fulfilled and there wasn't any available work, felt like the time could have been more productive
- So far I have only interned with Nucor, so I don't have a least favorite.
- First few weeks were not well organized.
- The little bit of down time I had, but there was not a lot of it.
- Looked down upon
- Getting to give orientation for new hires and laying out the expectations of working safely.
- Paperwork!!!!
- The 40 hour a week work limit.
- The heat
- I wasn't allowed to lock out, I missed many opportunities to get hands on experience
- My commute to work
- First week, HR, and training. It was not interesting, but no way to change it, as it was required for safety reasons, and was invaluable advice.
- Too much sitting behind a screen
- Didn't have a least favorite part. Everything about the experience was worth it.
- Issues with contractor response times to emails/phone calls
- I enjoyed everything about my experience.
- The lack of work. Often times I'd finish my work early and be given odd jobs (like building a chair for my boss) that didn't help me grow as an engineer and learn.
- What I learned is the experience of how to solve a problem and attitude of my colleagues
- Data Analytics
- I didn't really have any bad experiences
- My project was independent of what the people around me did on a day-to-day basis, so that was lonely sometimes.
- Being short staffed towards the end put a lot more stress on us in the office to make deadlines.

- I didn't love being the only female and being alone in a new place.
- Nothing
- I really did not like when I was counted out of meetings or not chosen to help on projects. As an intern, your goal is to learn as much as you can. I really don't appreciate salaried employees who take me out of learning opportunities because I can't always contribute. A company's goal should be to teach their intern as much as possible, then in turn they help the company. But an employee or company that looks at an intern and just 'wants to know what they can do for me' is a problem.
- Sometimes working in teams and in a big company it can be slow to get things completed.
- My least favorite part was probably trying to learn all the terms that come with the industry. It is a lot to take in.
- Updating spreadsheets
- Being somewhat confined to an office
- Sometimes I wasn't very busy in the office.
- Not enough personal incoming experience; teammates often had to slow down and explain things to me
- Not being able to be as hands-on as I would have liked. The union structure here means that I can't apply myself as much as I would like because I have to get somebody else to actually do the work.
- Working with SPDs

What should companies do to improve the intern experience?

- Make sure there is a well-established outline of how and what an intern will accomplish
- Don't let the interns slip under the radar. Keep them occupied and involved.
- Be prepared for interns upon their arrival
- Make sure to clearly define projects beforehand, and set interns on the right track.
- Follow Nucor's formula
- Have a good on boarding program and make interns feel like part of the team.
- Give interns more real world projects
- As much hands on work as possible. Interacting with clients, being in the mill, shadowing all positions, simulations.
- While i think the intern experience at my company was great, I think it was because I was provided with plenty of projects and given a choice of what i wanted to get involved in, as well as being given a great run down of how the process worked, and also got to go tour other mills that were part of the company i worked for.
- Try to have a good plan of what the interns will be doing before they show up

- My company did great
- Have a good idea of what the intern is responsible for.
- Include them more in meetings and company activities.
- More meaningful work
- Show different areas of the business
- I think something helpful is making sure the mentors have an assignment planned for their intern prior to them starting. Additionally, it could be helpful if the first thing mentors did is explain the assignment and discuss it with the intern
- Help interns get to see more parts of the industry and how the different processes all work together.
- Be prepared with work for interns
- Provide more substantial work, even if it means that the project is useless after the interns leave. Felt completely alone when working, no interaction with other interns
- Getting a better heads up of what my project will be and look like prior to moving down to Indiana.
- It's hard to push and guess, however the ability to analyze which interns should match up with others. I never could fit in into the other three interns assigned to my group. I was getting along with every other intern in the whole progra. It was just those three out of the group that made it especially difficult to belong.
- Allow you to work more than 40 hours
- Invest more time in interns, make them feel wanted, give them projects, listen to them
- Ensure they are fully engulfed in the company culture and understand the scope/bigger picture of the company and the industry as a whole. My internship was very good experience in that regard.
- more involvement
- Some companies give their interns a couple vacation days since after all it is summer. So maybe give the interns a couple days of paid vacation
- View your internship as something vital to the company. Respect your interns time and better prepare them before the internship. I had no contact information except for my HR rep so I had no idea who my manager was, were I was going or what I was doing until arriving. Also, I did not receive my Greens (PPE) until after 4 weeks of being on the job. I was working in the mill everyday and destroyed many jeans and shirts. Also, when talking to managers and other mentors they all said that they had no idea who we were until days before we arrived, give them time to prepare projects for the interns and set up offices for when they arrive.
- Give us all tours and give us greens right away, give us an office phone, give us radios, show us how to use radios, let us ride on a golf cart

- Have designated work laid out before the internship starts. This will keep interns busy, as well as giving mentors and supervisors time to complete their work as well
- Ensure a project is ready before the intern arrives
- Hands on learning that not only correlates to a student's field of study but also learning that is challenging yet rewarding.
- Make sure each intern has their own project(s) that they will be able to devote a lot of time to. Let interns see the other departments more.
- Give their interns the responsibility a coop would have. Especially if that intern learns the training quickly
- Give the opportunities for interns to shadow an engineer and better understand what they do on a day to day basis in their careers.
- Give interns freedom and responsibility with their projects. let them ask questions. provide a conducive environment for interns to succeed. Provide good mentors.
- Improve upon last year
- Companies could make sure everything is ready to go for the interns once they start.
- More travel, scholarships
- I felt like it was an overall great experience and had no complaints about it.
- Push regular communication between supervisors/managers and interns.
- Not sure it was great
- Companies should give more hands on projects to interns. I feel like SDI did a great job this semester doing that.
- Make some of the resources available to workers, available to intern to help in the experience gained.
- Allow interns to lock out
- Nothing. My experience was fantastic.
- Encourage interns to visit different departments for a day or two, shadow some other interns in those departments or full time personnel. Gives the ability to gain some experience in a different process of steel making, expanding knowledge allowing for a more informed decision or suggestion.
- maybe more cross training
- Improve the technology they are giving to interns
- Allow hands on projects. The point of working as an intern is to learn and gain experience so include them on whatever projects you can.
- Have feasible projects in mind for interns and involved mentors. Give interns the chance to shadow other jobs and/or get involved with MTEs and MTMs.
- To improve the intern experience, companies should have more communication between divisions and a more definitive itinerary for them.

- Provide an experienced employee for all interns to communicate with for simple industry questions.
- I didn't intern, but participated in a project for a client setup by my school. Therefore I have no valuable input here.
- More hands on experience working directly with an engineer. It would be beneficial to see the day-to-day life of an engineer in the field.
- Nothing, Everything is good.
- Keep activities and assignments structured and offer more opportunities to explore the company.
- Relate steel full circle. Finance interns learn more of the manufacturing side, and vice versa.
- Possibly a better housing stipend. I had issues in Cleveland with out of pocket costs
- My company could not have done much to improve the experience. I really enjoyed it, and they went out of their way to make me feel like a team member.
- Have projects ready. I see that often a company takes an intern, but does not initially have a full plan laid out for what they will do for the summer.
- Allow interns to experience all aspects of the company. Here, we got to tour mills and hear from executives, allowing us to see the company nearly full circle.
- Have more interns at each plant and make sure they live together.
- Bring Interns in on bigger projects as well as small projects. I really enjoyed the bigger projects that I was working on, and it really helped me get some real-world application.
- Only have approved interns. There are countless interns who complain about having nothing to do. So before a company hires an intern for a section of the company, ensure that you have a 3-4 month plan for them. They deserve just as much planning time as any other new employee.
- Integration of the interns into the work culture would be helpful. Also making the intern feel part of the team.
- I think just trying company-wide to get the intern involved as much as possible by presenting opportunities for the intern to participate.
- Teach them as well as have them do work. Tell them about more than just the projects they are involved with.
- This was a unique summer at SDI RBD and so I understand why I wasn't too busy all of the time with projects.
- Improve and streamline onboarding process
- Prepare them for the culture of the company and point them in the direction of somebody that can give advice on personal questions

- Have more engagement opportunities or more technical trainings that are educational. Particularly about things you don't necessarily learn in school (ex. corporate finances and budgeting in industry)
- Make sure their projects are meaningful

In your experience, what do you feel makes the ideal internship?

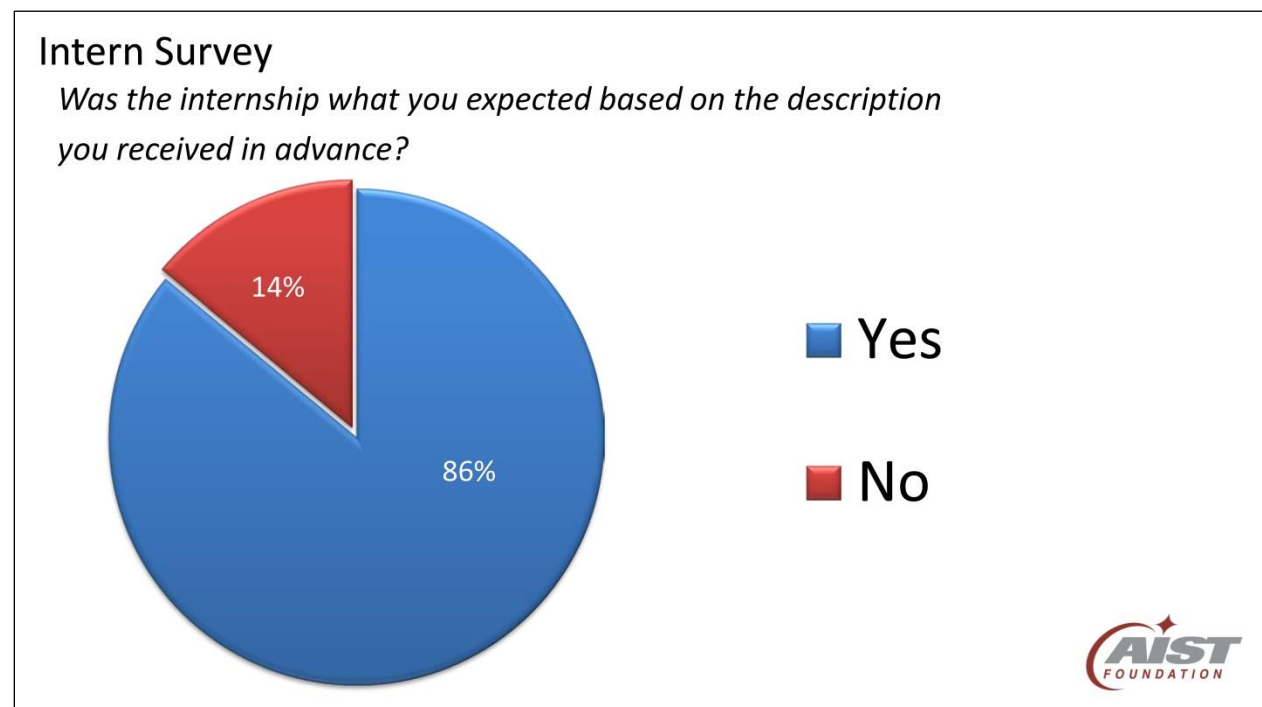
- Good team and work that makes you feel like you are contributing
- Knowledgeable mentors, consistent work, freedom to take chances and learn, and feedback.
- A balance between assigned tasks and the ability to choose things that are interesting to you and work with that.
- Having a welcoming environment with appropriate work for the level the intern is at, while giving them opportunities to stay busy outside of work.
- Meaningful work, freedom, being treated like a teammate, personal work space, and an enriching environment.
- Being given meaningful work, having independence, a group of helpful people to work with, and a good on boarding experience.
- The right company
- Hands on work and real world learning experiences. Getting to see a full view of the company as well as the industry.
- One where I am given some guidance on how to pursue my projects when i need guidance, but ultimately able to control the direction of the projects myself
- Interesting, potentially impactful projects and a relatively friendly work environment
- Experience in the field
- A project with a team, that way you can learn from experience, and contribute to something that has an effect.
- perfect mix of independence and team work and actual responsibilities
- A balance between freedom and guidance.
- Meaningful work
- Important projects
- Understanding what your assignments are, why you are doing them, and how they are of benefit. Also, having a mentor who is open to questions and is understanding about your lack of experience with this specific plant's terminology and company practices
- Getting experience in the office and in the mill.
- Interesting work
- Teamwork and cooperation. There was little to none here.

- Allowing the intern to take charge of a project but having a mentor to help guide him along the way. As a result of the project, the intern has made a difference and saved money for the company.
- Relevant work, good coworkers, and a hardworking spirit. This internship was what it was because what I made of it. I went for it, I asked questions, I bothered people. Without that, I wouldn't have learned anything and enjoyed my time as much as I did.
- Competitive pay, good experience and networking opportunities
- Communication, Delegation and Appreciation
- Creating an environment where you can really contribute to the organizations goals that bring value to the company.
- Learning, hands on experience, project based
- A position where you get projects to work on, and have guidance from your mentors so you can understand what you are actually doing.
- Hands on technical experience embedded with jobs that require communication and collaboration with other experienced engineers. This not only allows the interns to grow but lets them view what engineers are doing currently. In addition to this shadowing on large scale projects to better understand the engineering process. 30% shadowing 70% collaborative work.
- Lots of great experience
- Being treated as an actual employee and having daily work on top of projects. Only having projects makes the experience feel like a class. If we had daily work, it would give us more of a feel for what a career in the company would be like.
- a substantial project that allows the student to view multiple portions of the facility and contribute to production
- An environment that is welcoming, willing to teach and provides opportunity to students.
- Applying what I learned in school in a fun and productive way as well as learning new things I wouldn't have learned in school.
- Having the ability to see all sides of the steel industry while also being able to focus in one position to then be treated like a full time employee
- An ideal internship to me would be in an environment where I am able to work well with my peers, being able to work with my hands, and to participate in meaningful research/work.
- Being able to work with other interns to solve problems and then reporting the results to more experienced individuals to get their professional opinion
- Being able to take a problem (assigned task) and work from start to finish to develop a solution solely by your own self-drive. And having your peers support, fund, implement, whatever you decide to do (long as it's good of course).

- A well rounded experience that gives experience in all parts of the process while working on projects that both build a resume and help the company
- The people around you make or break an internship. If the people you are surrounded by try hard to give you a great experience and puts effort into helping you learn, then you are set for an ideal internship. I was lucky enough to have this ideal internship.
- Communication
- Flexible schedule, pay, supervision that cares about you personally as well as the job you do.
- Consistent communication with supervisor/manager, inclusion in meetings/conference calls, meaningful work, activities with other interns.
- Being hands on and learning things you didnt know
- A good mixture of hands on experience and project management.
- Cooperation from coworkers.
- Pretty close, more hands on in order to see first hand how the machines operate
- Interaction with different levels of the organization.
- Always having something to do, someone to shadow, flexibility to follow your interests in an attempt to find your passion within the steel industry.
- A balance of work from different departments and meaning products.
- An ideal internship is one that broadens my knowledge on the specific subject area, and allows me to use problem solving skills.
- Contributing work on a daily basis that actually is being used to help the company
- Many hands-on projects and learning new things.
- A completed project that made a measurable difference to the company, an in-depth understanding of the specific part of the steel-making process the intern was involved in, a general knowledge of the other steps of the process, and opportunities to network with other workers at and beyond the company.
- In my experience, I feel that the hands on experience with the amount of responsibility we had (traveling between divisions) makes an ideal internship. As an intern, I felt very valued and felt that I was treated as a normal employee as opposed to just an intern.
- Having employees that help interns through their mistakes.
- The ability to do more difficult projects while I'm there. Having a mentor to guide and be there in case help is needed, but overall independence.
- One where you are observing, working with, and learning from professionals who have a lot of experience.
- A place that cares to see you grow and develop and do meaningful work.
- Hard work and dedication to a project
- Student learns a lot, does meaningful work, and feels like a valued team member.

- Learning and interactions. Being on the field with those who are willing to teach you something new.
- Being around great people and being in an environment that is warm and welcoming.
- Controlled responsibility
- The culture of the company. Also a feeling of contribution to the company
- A company that is eager to teach, and an intern patient enough to learn. Set standards early and always encourage questions. And overall have an enjoyable work place with kind and inviting people. I feel like the future of the work force should be excited and happy to join the work force and this is an opportunity to do so.
- One that has continuous work that can be done and being involved in projects. Having many learning opportunities and training would grow the intern as a worker.
- Being able to be a part of meaningful projects.
- Being involved with projects that have meaning and an impact for the company. Not just busy work.
- Meaningful work which will improve a process
- The connections you make with other workers.
- Opportunity to grow and connectivity to theory learned in school
- I'm not sure how to answer this question... No place is PERFECT
- Feeling like you have a purpose

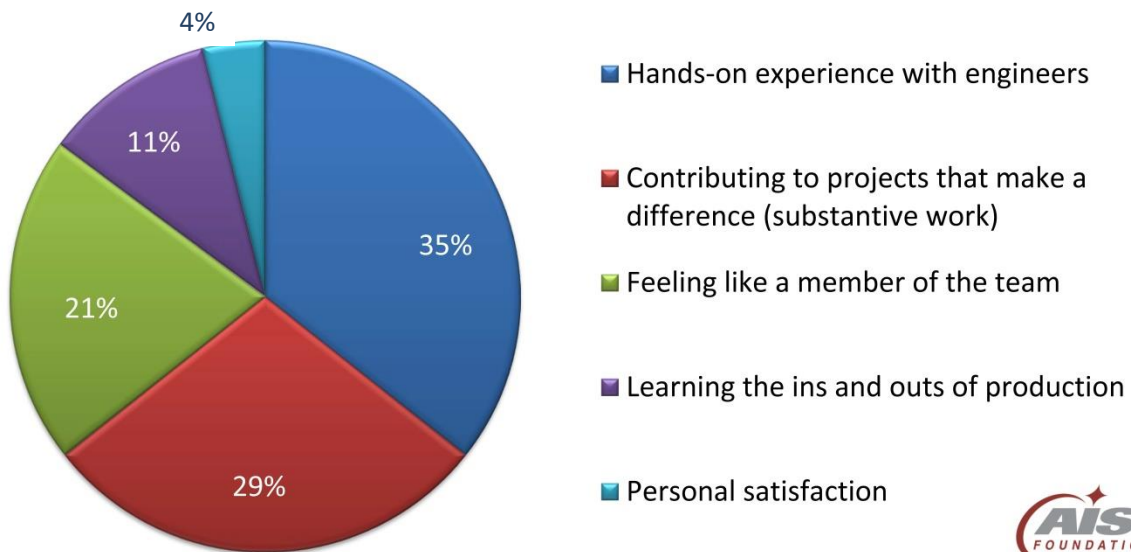
Was the Internship what you expected based on the description you received in advance?



CO-OPS

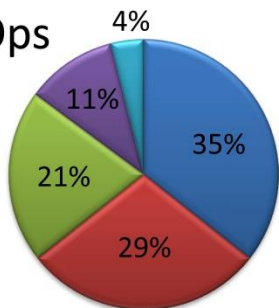
Co-Op Survey

What was your favorite experience during your co-op?



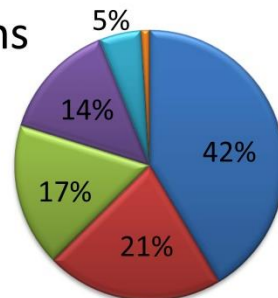
Intern vs. Co-Op: Favorite Experience

Co-Ops



- Hands-on experience with engineers
- Contributing to projects that make a difference (substantive work)
- Feeling like a member of the team
- Learning the ins and outs of production
- Personal satisfaction

Interns



- Contributing to projects that make a difference
- Feeling like a member of the team
- Learning the ins and outs of production
- Hands-on experience with engineers
- Other
- Personal satisfaction

What was your least favorite co-op experience?

- Cultural differences between coworkers was noticeable, more work can be done to improve diversity and remove 'glass ceiling' in the industry.
- Dealing with management.
- Feeling like I was working too quickly and not having a project to work on.
- The stress in the work environment
- Having to climb a 220 foot tall reactor.
- Waking up early
- Not having a lot of time off to see my family.
- I liked everything.
- The initial period where you are getting settled in, just because change is always a little uncomfortable
- Lack of activities outside of work but that has nothing to do with SSAB.
- As a co-op, I had very little experience going in. A combination of this and the full 40+ hour work week led to me being tasked with a lot of repetitive work that I learned how to do in the first few weeks. This included things like collecting parts, sample preparation, and hardness testing for only a few different steel parts.
- Being the only co-op student in my department
- Learning the reality of working a lower position in the work place such as not getting things that you need done from others due to being a coop
- Doing sometimes very repetitive work.
- Paperwork/menial tasks that did not contribute to overall project progress.
- Downtime between projects.
- The far commute because of the location of the company.
- Pretty much everything
- There was a lot of downtime during my experience in co-op. The fact that my department is very busy and that I am new to the steel industry makes it hard for someone to really show me the ins and outs of everything. It took some time before I knew enough to contribute anything.
- I was the only co-op in the company from pitt, and there were only a few interns scattered across from different industrial campuses. It was kind of lame, with minimal social interaction with other similar aged co-ops.
- Coming in not knowing too much
- Political views in the workplace.
- My least favorite experience was the week when the microscope software was not cooperating. I was not excited about having to be “stuck” for a week not really getting anywhere on my project. But I did use it as a learning opportunity to find other ways to

be productive on side projects, and use problem solving skills to help assist in troubleshooting the software issues.

- Not having anything to do when things are running smoothly at the mill
- Just some less exciting projects that were either monotonous or uninteresting but needed done.

What should companies do to improve the co-op experience?

- Encourage students to network and interact with each other, especially true at steel mills that hire lots (50+) interns per season.
- Understand that new ideas are valuable
- Check up on the co-op student often enough and have work ready.
- Reach out to more universities
- Always include interns and co-ops and have the work they do be meaningful to the company. Giving a student back burner work makes them feel less valued, and makes them question what they will work on if hired full time.
- Give interns some kind of apparel
- Improve the onboarding process. Send out more information prior to arrival.
- My experience was good. i don't find anything needs to be improved.
- Let the student know in advance what kind of project he/she will be working on.
- Have regular feedback for co-ops so that we can perform better we are here to learn not just about steel but how to conduct ourselves in a work setting.
- Ensure that there is a solid training plan in place before the co-op starts working, and lasts throughout the duration of their time with the company.
- Hire more co-op students per department! :)
- Have more meetings together to coordinate ideas and develop relations with coworkers
- Less mundane repetitive work, more unique project participation and learning
- Vary work. Include more time dedicated to working with full time metallurgists.
- Assign students projects relevant to their majors. I spent a semester doing industrial engineering work and although it was enlightening I was not hired to be an IE.
- Have co-ops shadow an engineer for a little during their first rotation.
- Companies should be intentional about building the culture and community for co-ops, and create opportunities for co-ops to get to know each other with events that are catered to the younger gen.
- Make the co-op a responsible part of the team. Not just an intern
- I think companies should try to have a more hands on starting program. I think in this industry you learn best by hands on experience and starting your first rotation by reading manuals in an office setting is not the best way to get accustomed to the steel industry.

- Nothing for mine. It's been great
- Get more co-ops
- Give more hands on experience in some of the larger companies
- Providing interns the opportunity to do substantive work, feeling like a member of the team, hands on work, and working with engineers.
- I was the only intern during the spring, but other interns started to show up in the summer so it was nice to be around other people my age and have some friends. I think it would be good to try to have at least two people when doing a co op.
- Potentially assign more projects to co-ops since they will be around for a longer time than interns
- I have no suggestions for my company to improve. I would suggest that other companies should look to my company for examples of a good co-op.
- My co-op had me working with good engineers that gave me good independent assignments and good knowledge (pertinent to my job and outside of just the steel industry). Human Resources also made sure to check in that the co-op was going well and scheduled not only plant tours of the whole Mill for us but also other events for all of the co-ops to meet up and learn more about steel production.

In your experience, what do you feel makes the ideal co-op?

- An ideal co-op is one where you leave feeling as though you made a difference and gained skills/knowledge that you did not previously have.
- Advanced technology, hands on work and respect for all employees regardless of rank.
- Ensuring the co-op student is working at his/her appropriate pace and skill level.
- Being treated as an engineer instead of 'just an intern'
- Being given real tasks by a supervisor that actually holds credence to what you could be doing full time. No micro management.
- Having a good mentor and being active during the work days
- Good coworkers that are understanding and willing to help you learn about your job and about the industry.
- Support of manager and co-workers.
- Projects based on co-op's interest.
- A mentor(s) that works closely with you but also trusts you and gives you the freedom to work independently. Meaningful projects, good communication and colleagues that work as a team and are helpful. Provided housing. Good pay.
- Someone who is interested in their work and is flexible enough to be able to adapt their schedule to the needs of the day.

- Having a supervisor who sees the co-op as an extension of their self, and not just an underling. By working side by side with the engineer/supervisor, the co-op will receive a much more valuable experience and be able to take away more knowledge from the opportunity.
- Good hours, supportive team and meaningful work
- Being able to make an impact to the company
- A job that focuses on your ideal field of study and motivates you to work in such a field or even a job that would motivate you to pursue a new career
- Someone who is ready to learn new things and do challenging work.
- Where you have the opportunity to learn in a supportive environment.
- Independent, proactive, PASSION. Do not necessarily have to have the best GPA but as long as you show passion for the company and the work they do it should get you a foot in the door.
- A company that treats you like an employee not just an intern, while also helping you to grow and develop as an engineer.
- A co-op position where you can learn a lot and go around the plant to see the operations with your own eyes.
- Personalized projects based on your interests and skills.
- An ideal co-op is an experience that engages the student in short and long term projects. It should keep the student busy busy with work and expose them to different areas of the industry.
- Great people to work with, good pay and differentiated work.
- A balance between self-projects and group projects. It was more self-do it entirely by yourself projects over cooperative work.
- Having a few at a site and giving personal attention
- Receiving a project that you are in charge of but is guided and monitored by a professional.
- I think integrating concepts from the classroom and school to see how it actually is used in the company. Projects were very good at that (I did work for the company but also got to expand my metallurgical knowledge at the same time).
- Hands on experience/lots of exposure.
- I asked a lot of questions and asked to go try or do or see a lot of areas in the mill because I wanted to get as much knowledge as I could about the whole process. I think that is very important for a co-op; it helps create the big picture.
- Mentors. Having people to go to and ask questions about their job, how they got there and even outside of work questions about life and “adulting” was extremely valuable. The information they gave me was something I would never find in a textbook.

- Intern summit. Not every company does this, but the one I worked at did. It was really cool to meet others my age and like me who are also interested in the steel industry. I think it's a great way to build future connections and practice networking and learning how to work as a team with people who have different personalities and strengths.
- Having multiple projects that help to impact the company and make a difference in production
- Working with good engineers.
- Working on independent design projects.
- Good communication between engineers, co-op and HR.
- Good experiences to grow in both engineering and the industry.

Was the Co-Op what you expected based on the description you received in advance?

