SPARK FORCE™

THE FMA FOUNDATION

Summer Manufacturing Camp

HOST HANDBOOK

Everything you need to know before, during, and after camp.



sparkforce.org/camps

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Camp Directors, Staff, and Instructors — This handbook will help you plan your summer manufacturing camp. Please read through the materials carefully. Contact the foundation office at **foundation@fmamfg.org** or **888-394-4362** with any questions.

Camp Objectives, Learning Activities, and Desired Outcomes

CAMP OBJECTIVES:

- Introduce students to the world of manufacturing through hands-on projects made in real "shop" facilities, presentations by industry professionals regarding careers and training, and site visits to manufacturing facilities.
- Introduce students to basic entrepreneurial concepts and skills.

Approximately 80% of contact time should be spent on manufacturing skills, processes, projects, and facility tours while 20% of contact time should be spent on the introduction of entrepreneurial concepts and skills. Some of the entrepreneurial content can effectively be delivered by guest presenters during plant tours or at the camp location, as well as during evaluations of the projects built by students. Several entrepreneurship lessons contained in the camp materials have been designed as homework so students can get their parents and family involved.

EXPECTED LEARNING ACTIVITIES:

1. Students are guided through a basic shop safety lesson and taught how to practice shop safety based on the safety manual provided to camp hosts.
2. Students learn basic computerized product design using CAD software (free student licenses for SolidWorks will be provided to all camp participants).
3. Students manufacture a product — start to finish — using manufacturing equipment, hand tools, and other appropriate aids.
4. Students explore and gain a basic understanding of the challenge of an inventor / entrepreneur in taking a product from idea to business. Lessons are provided in the curriculum on topics such as new product creation, pricing, marketing / advertising, etc.
5. Students learn about the types of manufacturing jobs available in the local community through tours of local manufacturing companies, presentations and mentoring by local manufacturing professionals, and other appropriate activities.
6. Students learn about the teamwork required in an effective manufacturing work environment.
7. Students gain an understanding of the kinds of academic and technical training they will need (in high school and beyond) to prepare themselves for future manufacturing careers.

Camp Preparations and Responsibilities

BEFORE CAMP:

1. Camp hosts will receive their initial grant installment (75% of the total grant award) in February.
2. Camp instructors must determine an appropriate project for the campers to make and take home. A list of product ideas successfully completed in previous camps is provided on page 5.
3. The camp host school or organization is responsible for marketing and promoting the camp to recruit students aged 12 to 16, and for managing participant registration. To assist with promotions, customizable marketing materials will be provided. Additionally, all camps will be listed on the foundation website and promoted through the foundation's media channels.
4. Camp staff should arrange to purchase or obtain donated materials needed to complete the manufacturing project.
5. SolidWorks CAD design software student licenses will be provided for all camp participants. These 365-day licenses are generously donated by SolidWorks.

   Donated software can be installed on students' personal computers only. Schools that have purchased SolidWorks through a reseller can download the trial student version software for use during the camp.
6. Camp staff should prepare shop equipment, hand tools, and other elements of the work area to facilitate smooth and efficient movement by students from one phase of the product manufacturing process to another.
7. Camp hosts should schedule visits to local manufacturers and confirm guest speakers.
8. Ideally, camp hosts will request financial support from local manufacturers, community organizations, economic development groups, and other local agencies and businesses to supplement the grant provided and the registration fees collected from students.

   In March, camp hosts will gather company logos from all sponsors and supporters to be included on the custom camp t-shirt design.

DURING CAMP:

1. On or before the first day of camp, staff must collect signed photo release forms from parents or guardians for each participant.
2. On the first day of camp, participants will complete the pre-camp survey online. Camp hosts will receive the survey link in advance of the camp. A sample survey is available on page 6.
3. Staff should capture photos documenting camp activities to be featured on the foundation's website, social media channels, and in promotional and fundraising materials. Please select and share your top 10 to 20 photos.
4. Staff should also consider recording some of the camp activities to create a promotional video that can be shared on Facebook and YouTube. Videos can also be great tools for recruiting future camp participants. Examples of camp videos can be found at sparkforce.org/camps.
5. On the final day of camp, participants will complete the post-camp survey online. Camp hosts will receive the survey link in advance of the camp. A sample post-camp survey is available on page 7.



Camp Preparations and Responsibilities (continued)



AFTER CAMP (within 30 days):

1. The director or camp staff must complete the online camp evaluation survey and financial report within 30 days of the camp's conclusion to receive the second grant installment (25% of the total grant award). Camp hosts will receive the survey link prior to the camp start date. A sample evaluation survey is available on pages 8-10.
2. Within the online evaluation survey, camps will be asked to provide contact information for local supporters, manufacturers, entrepreneurs, speakers, tour locations, and donors.
3. Submit your top 10 to 20 camp photos and videos along with the signed photo release forms for your campers. Detailed instructions for uploading your photos and videos will be provided before your camp begins.

If you need assistance or have questions, please contact:

SparkForce, The FMA Foundation
2135 Point Blvd.
Elgin, IL 60123
foundation@fmamfg.org
888-394-4362

Previous Camp Manufacturing Projects and Ideas

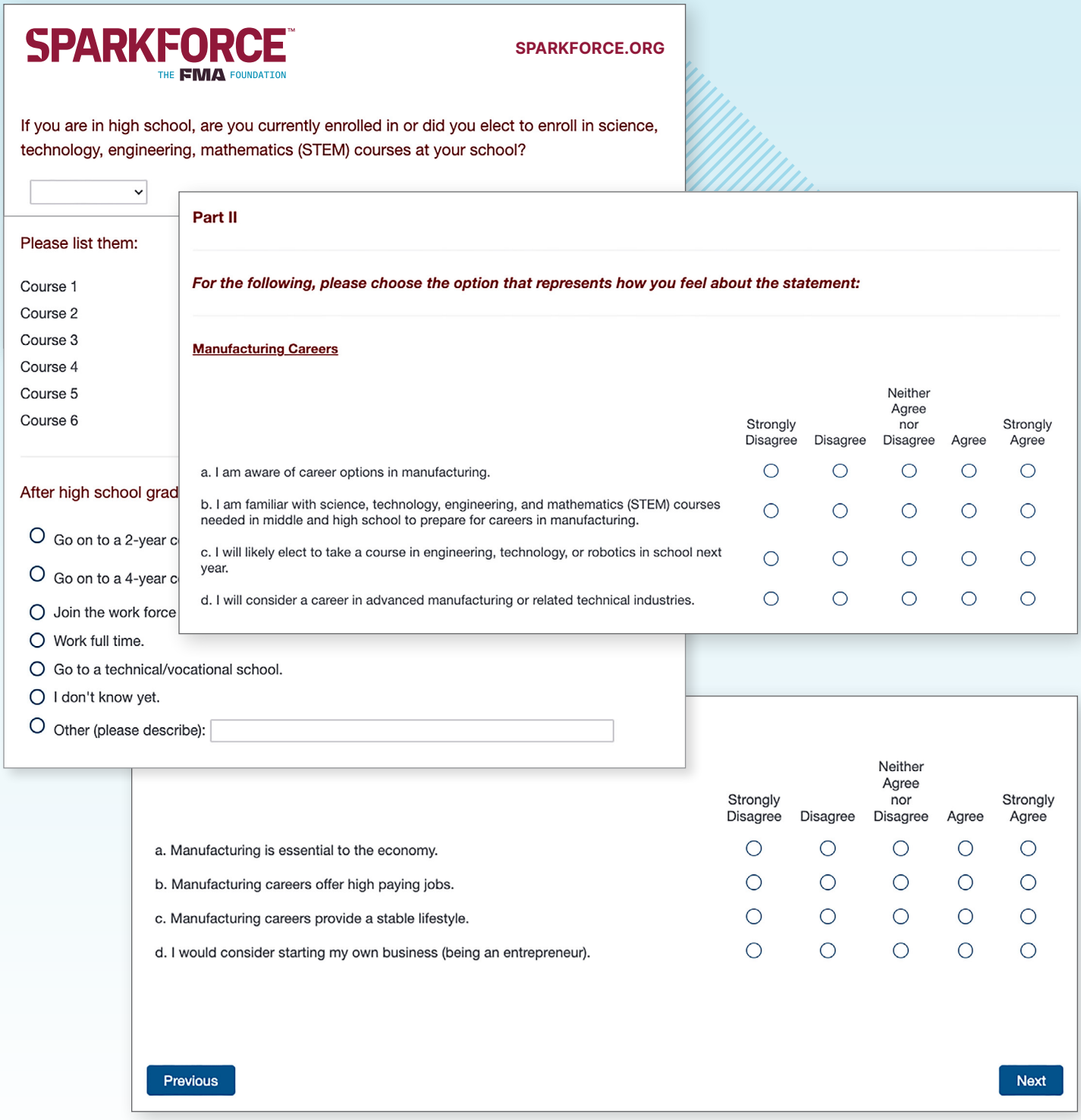
Following are projects that were constructed in past camps:

- Electric guitar
- Key chains
- Dice and chess pieces
- Windmill
- Cell phone holder
- Bridge
- Rube Goldberg machine
- Metal dinosaur
- Metal chair
- Jewelry
- Picture frames
- Outdoor fire pit
- Design and program robots
- Outdoor grill
- Wood candle holder
- Metal candle holder
- Metal flower
- Metal Star
- Plant stand
- Lawn ornament
- Dog tags, luggage, or pet ID tags
- Hovercraft
- Fabricated pen
- Tool box
- Bottle opener
- Metal table
- Metal art objects
- Wrought-iron end table
- Horseshoe coat hook
- Trivet / hot plate
- Mailbox
- Metal organizer for electronics
- Aluminum engraved desk plate
- Fabricated accent lamp
- Welded artwork
- Hammer
- Metal bird feeder, bottles, cup holders
- Metal sculptures
- Power tool dragster
- Wind turbine
- Clock
- RF Controlled robotic vehicle
- Remote controlled mini forklift

SAMPLE: Pre-Camp Survey

All camp participants should complete this survey on the **FIRST DAY** of camp.

These are sample questions and do not include the full survey. A link will be provided for camps to administer the survey to students online on the FIRST day of camp.



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If you are in high school, are you currently enrolled in or did you elect to enroll in science, technology, engineering, mathematics (STEM) courses at your school?

Please list them:

Course 1
Course 2
Course 3
Course 4
Course 5
Course 6

After high school grad

- Go on to a 2-year c
- Go on to a 4-year c
- Join the work force
- Work full time.
- Go to a technical/vocational school.
- I don't know yet.
- Other (please describe):

Part II

For the following, please choose the option that represents how you feel about the statement:

Manufacturing Careers

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. I am aware of career options in manufacturing.	○	○	○	○	○
b. I am familiar with science, technology, engineering, and mathematics (STEM) courses needed in middle and high school to prepare for careers in manufacturing.	○	○	○	○	○
c. I will likely elect to take a course in engineering, technology, or robotics in school next year.	○	○	○	○	○
d. I will consider a career in advanced manufacturing or related technical industries.	○	○	○	○	○

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. Manufacturing is essential to the economy.	○	○	○	○	○
b. Manufacturing careers offer high paying jobs.	○	○	○	○	○
c. Manufacturing careers provide a stable lifestyle.	○	○	○	○	○
d. I would consider starting my own business (being an entrepreneur).	○	○	○	○	○

Previous

Next

SAMPLE: Post-Camp Survey

All camp participants should complete this survey on the **FINAL DAY** of camp.

These are sample questions and do not include the full survey. A link will be provided for camps to administer the survey to students online on the FINAL day of camp.

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Part II

Thank you for attending this summer camp. We hope you found it a useful way to learn more about advanced manufacturing and career options.

For the following , please choose the option that represents how you feel about the statement:

Manufacturing Careers

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
a. I am aware of career options in manufacturing.	○	○	○	○	○
b. I am familiar with science, technology, engineering, and mathe and high school to prepare for careers in manufacturing.					○
c. This camp helped me better understand how science, technol used in industry.					○
d. I will likely elect to take a course in engineering, technology, o					○
e. I will consider a career in advanced manufacturing or related t					○
f. The activities I took part in helped me make the connection be applications.					○
g. The camp provided opportunities for teamwork and collaborat					○

Overall, how satisfied are you with the summer camp?

- ○ Very Satisfied
- ○ Satisfied
- ○ Neutral
- ○ Dissatisfied
- ○ Very Dissatisfied

From the list below, choose your favorite part of the camp:

- ○ Operating equipment or machinery
- ○ CAD/CAM (Design work)
- ○ Welding
- ○ Entrepreneurship activities
- ○ Touring local manufacturers
- ○ Guest speakers
- ○ The instructors
- ○ Special projects
- ○ Other

SAMPLE: Final Evaluation and Financial Report

Within 30 days of the camp's conclusion, directors must complete the online evaluation survey to receive the final installment of the camp grant funding.

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Section 1: General Information

Grantee refers to the school or organization that received grant funds awarded by SparkForce. Camp location is the physical location where the camp was help.

Camp Grantee Information:

Grantee School / Organization
Contact First Name
Contact Last Name
Grantee Address
Grantee City
Grantee State
Grantee Zip Code
Contact Phone
Contact Email

Camp Location, if different from Grantee:

School / Organization
Address
City
State
Zip Code

Camp Information:

Camp Name
Start Date (mm/dd/yyyy)
End Date (mm/dd/yyyy)

What was the primary manufacturing technology introduced to camp participants?

- ○ 3D Printing
- ○ CAD/CAM
- ○ CNC
- ○ Coding/Programming
- ○ Electronics
- ○ Laser Processing
- ○ Machining
- ○ Mechatronics

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Section 2: Partnerships with Manufacturers and Sponsors

How many local sponsors, organizations, or manufacturers provided **financial support, in-kind support, or general support** such as providing a guest speaker, hosting a plant tour, serving as a mentor/volunteer, or giving a monetary donation?

You will be asked to provide detailed information for the number of organizations you indicate.

Number of Sponsors and Supporting Organizations:

Next

These are sample questions and do not include the full survey. Camp hosts will receive the survey link prior to the camp start date.

Section 3: Camp Participant and Camp Staff Demographics

How many students registered and completed your camp?

Registered:

Completed:

Please Note: The following questions are to help us better understand the demographics of populations that SparkForce camps are serving. We are looking for percentage estimates, not individual student or staff member data. Responses will not be used to modify policies, influence funding and grant decisions, or impact relationships with camp providers.

Please provide the percentage of students at your ca
disadvantaged:

Low %

0 20 40

% of students considered economically disadvantaged:

These are sample questions and do not include the full survey. Camp hosts will receive the survey link prior to the camp start date.

Section 4: Hosting a SparkForce Manufacturing Camp - Benefits to Your Institution

Please give an assessment of how successful the camp was in fulfilling the following goals and program objectives:

	Very Successful	Somewhat Successful	Neutral	Fairly Successful	Not at All Successful
Exposing students to the world of manufacturing:	○	○	○	○	○
Providing learning opportunities through hands-on projects made	○	○	○	○	○
		○	○	○	○
		○	○	○	○

Section 5: SparkForce Camps - Creating Career Pathways in Manufacturing

Our main goal is to increase the number of people who persue career pathways related to manufacturing and work in manufacturing environments.

In what ways have you promoted manufacturing careers to students attending your camps and enrolled in your school's manufacturing programs? Please check all that apply.

- ☐ Recruit camp participants to your
- ☐ Inform camp participants what pro
- ☐ Inform camp participants about th manufacturing program students.
- ☐ Provide camp participants with op plants.
- ☐ Inform camp participants of CTE (high schools.
- ☐ Partner with local high schools/co
- ☐ Involve camp participants' parents them to team presentations, competiti
- ☐ Offer advanced camps and/or me
- ☐ Inform participants about apprenti
- ☐ Other

Section 5: SparkForce Camps - Creating Career Pathways in Manufacturing

Please rate your overall satisfaction in working with SparkForce.

- ○ Very satisfied
- ○ Satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Dissatisfied
- ○ Very dissatisfied

Please comment on your partnership with SparkForce during this camp experience.

SAMPLE: Final Evaluation and Financial Report (continued)

Within 30 days of the camp's conclusion, directors must complete the online evaluation survey to receive the final installment of the camp grant funding.

These are sample questions and do not include the full survey. Camp hosts will receive the survey link prior to the camp start date.

Section 7: Financial Report

REVENUES

SparkForce Grant Funding	$ 0
In-Kind Donations	$ 0
Registration Fees	$ 0
School / Grantee's Funds	$ 0
Other Funding Sources	$ 0
Total	$ 0

Capital / Equipment	$ 0
Contract Services	$ 0
Facility Rental / Lease	$ 0
Food	$ 0
Printing / Publicity	$ 0
Salary / Benefits	$ 0
Supplies / Materials	$ 0
Travel	$ 0
Utilities	$ 0
Other	$ 0
Total	$ 0

Total Revenues (from above)	$ 0
Total Expenses (from above, please leave the "-" (negative sign) prior to the number you enter as this will automatically be subtracted from the Total Revenue)	$ -
Total	$ 0

I verify that the financial figures entered above are accurate to the best of my knowledge.

× SIGN HERE

clear

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