Apprenticeships Toolkit

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Introduction

Welcome to the Apprenticeships Toolkit.

This collection of practices, templates, and guidance is drawn directly from the daily operations of Google's U.S. Registered Apprenticeship Program (RAP). Since launching the program in 2020, our team has welcomed hundreds of apprentices and worked to create pathways that are both rigorous and equitable. While this toolkit focuses on apprenticeships for the American workforce, we share best practices across Google's global apprenticeship programs, which have been fostering opportunities and increasing access since 2017.

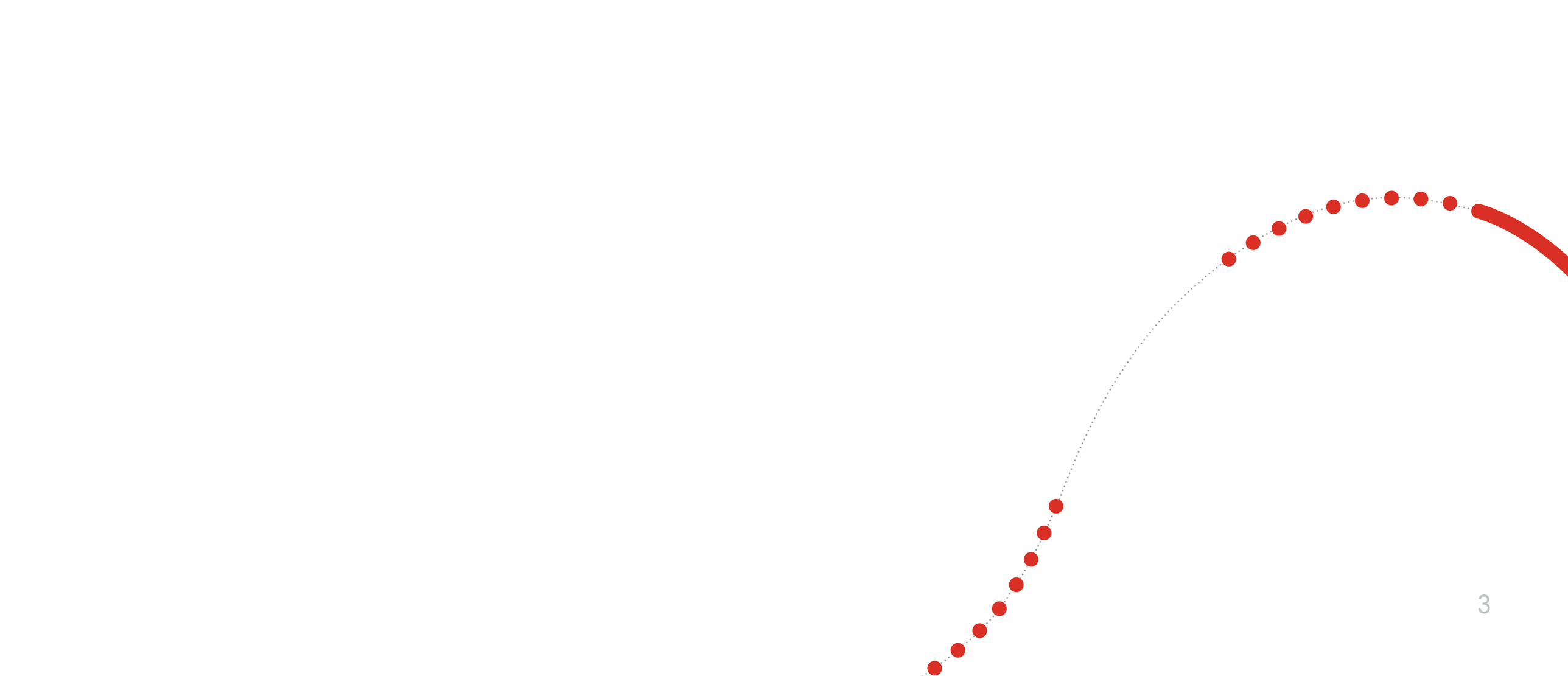
These resources are not shared as an authoritative "playbook," but as an offering of what has worked for us and why, while recognizing that our internal experience reflects our unique environment. What we do at Google may not be the right fit for every employer. However, we believe there is value in sharing the lessons we've learned, the frameworks we've tested, and the templates we use every day.

In this toolkit, you will find:

- **AI-ready frameworks:** Methods for integrating AI into apprenticeships so apprentices are prepared for the future of work.
- **A focus on durable skills:** How we measure and assess essential skills with the same rigor as technical ones.
- **Actionable guides and templates:** Tested approaches on key processes and clear, adaptable standards for high-demand roles.

As we test and refine our own methods, we remain committed to sharing our evolving knowledge and will be adding resources regularly. We hope the toolkit is helpful for other employers as we all work to expand opportunities and build a durable, skilled workforce.

Contents



Spotlights

Practicing AI effectively and responsibly in the workplace

As AI becomes a fundamental tool across all industries, apprentices must be able to practice responsible, effective, and innovative use of AI in the workplace, remaining "job ready" even as models and tools change.

To ensure every apprentice builds these critical proficiencies, we have established a job function that is integrated into the Registered Apprenticeship Standards for all of our programs:

Job Function

Practices effective and responsible AI use in the workplace

1. Evaluates the strengths, risks, and limitations (e.g., outdated data) of AI models and tools to determine their appropriateness for specific tasks
2. Uses AI tools to enhance productivity and creativity, and to support problem solving
3. Creates and refines AI inputs (e.g., prompts) using clear context and constraints to maximize the relevance and accuracy of outputs
4. Critically reviews AI-generated outputs for accuracy, bias, and completeness, validating against trusted sources
5. Protects personal, proprietary, and client data by adhering to organizational AI policies and using approved tools
6. Assumes full accountability for final decisions and deliverables, ensuring proper disclosure and citation for AI-generated content
7. Contributes to the advancement of responsible AI by sharing successful strategies and lessons learned, documenting risks and reporting errors

Grounded in global frameworks

These competencies are built on six core domains: foundational literacy, practical application, critical evaluation, risk mitigation, data privacy, and accountability. We identified these domains by analyzing established frameworks such as the National Institute of Standards and Technology (NIST) AI Risk Management Framework (RMF), the Alan Turing Institute's AI Skills for Business Competency Framework, and Google's AI Principles.

Measuring success

We treat AI proficiency with the same rigor as technical skills. It is not just encouraged—it is observed and assessed throughout the entire apprenticeship. Apprentices must provide quality evidence demonstrating they can apply these skills responsibly, ethically, and effectively.

Relevant trainings

To provide a strong foundation for these competencies, our apprentices complete several hands-on trainings. We leverage the Google AI Professional Certificate specifically for its emphasis on applied practice, featuring 20+ labs focused on real-world AI applications. Along with Google AI Essentials, these courses provide a robust starting point that can be adapted for any apprenticeship program.

If your organization is interested in learning more, visit the Grow with Google AI training overview to see the curriculum details for these and other AI course offerings.

Durable skills in the workplace

Durable skills — often referred to as “soft skills” or “transferable skills” — are essential for succeeding in the workplace, regardless of specific roles or technological advancements. These skills are considered “durable” because they remain valuable over time, even as the job market evolves.

To ensure our apprentices are prepared for the future of work, we have integrated the following seven competencies into all of our Registered Apprenticeship Standards:

Job Function

Demonstrates use of durable skills in the workplace

1. Communicates effectively and thoughtfully in both written and verbal formats
2. Gives, receives, and acts upon constructive feedback
3. Demonstrates effective and proactive problem solving
4. Acts as a reliable teammate and peer when working collaboratively
5. Utilizes time management strategies and effectively prioritizes tasks to meet deadlines
6. Takes accountability and ownership of assigned work and its outcomes
7. Actively pursues opportunities for learning and development to adapt to new challenges and evolving technologies

Built for the future of work

These competencies are built on five core durable skills: Collaboration, Communication, Critical Thinking, Leadership, and Metacognition. We chose these specific skills by analyzing global trends and centering what employers value most. Our research included insights from the World Economic Forum’s Future of Jobs Report and the Durable by Design report from America Succeeds, alongside data on the skills most frequently requested in job postings.

Measuring success

We treat durable skills with the same rigor as technical skills. They are not just encouraged — they are observed and assessed throughout the entire apprenticeship. Apprentices must provide quality evidence demonstrating that they can perform these skills consistently and independently.

Approaches

How we infuse AI into competencies

Our program addresses AI literacy with a two-pronged approach: first, through stand-alone competencies focused on using AI effectively and responsibly in the workplace, and second, through role-specific competencies infused with high leverage AI skills. By weaving AI directly into existing occupational standards, we ensure apprentices learn to apply these tools within the practical context of their day-to-day work.

Our method

We use a three-step method that combines AI-assisted brainstorming with human review and rigorous expert validation:

Step 1: Brainstorming with AI

We begin by uploading a program's full set of competencies into the Gemini app and use a targeted prompt to generate initial ideas for leveraging AI.

Prompt used: "Given the following job function and subset of competencies, what is the most essential way an entry-level [role] can use AI to enhance their productivity and creativity in this domain?"

Step 2: Putting the human in the loop

This step ensures a human perspective guides the development, moving from automated ideation to thoughtful judgment. We treat the raw AI output as a starting point and use the same responsible AI practices we expect from our apprentices: we critically review the AI-generated suggestions for accuracy and bias, and assume full accountability for refining them into relevant, high-quality concepts.

This process results in a core concept ready for drafting. We then apply the following guidelines to write the final competency language:

- **Prompt for critical thinking:** We use qualifiers like "when appropriate" to encourage apprentices to critically evaluate the context of a task. This prompts apprentices to ask, "Is this the most effective approach for this specific problem?" and to make a deliberate choice about the right tool, whether it's a design methodology, a coding library, or an AI app.
- **Use tool-agnostic language:** We favor broad terms like "AI tools" or "statistical software" rather than specific product names to prevent standards from becoming quickly outdated. (Note: we make exceptions for role-specific competencies where a specific tool, like Figma for UX Designers, is an industry standard.)
- **Prioritize action-oriented verbs:** We use verbs that describe observable actions (e.g., "uses," "creates") over knowledge-based verbs (e.g., "explains") to ensure we are assessing real-world application.

Step 3: Validating with experts

We then pressure-test our team's refined ideas with Google subject matter experts and current apprentice managers.[2] We've also consulted with the Urban Institute, a key partner to the U.S. Department of Labor on national occupational frameworks, to ensure alignment. This review is guided by two core questions:

1. Does this competency represent essential entry-level knowledge?
2. Is this the most critical way an apprentice in this role can use AI to enhance their work?

Putting it all together: Examples by role

The table below illustrates how this process results in a clear shift in focus toward AI-enhanced workflows and deliverables.

Access our complete Registered Apprenticeship Standards for all programs here.

Program & shift in focus	Sample AI-embedded competency
Data Analytics From writing code from scratch to validating AI-generated scripts	Writes well-documented, understandable, and efficient code in reproducible cleaning procedures, leveraging AI tools and technologies and typical statistical software (e.g., SQL, Python, R, Stata), to clean data (2-3)
Digital Marketing From blank-page creation to curating AI-generated options	Contributes to the creation of content strategies for digital media, utilizing AI tools to suggest text, graphic, and video content when appropriate (1-4)
IT Support From manually searching knowledge bases to implementing targeted AI solutions	Uses internal knowledge bases, Artificial Intelligence (AI), Machine Learning (ML) or other job aids to troubleshoot hardware or software faults (2-1)
Project Management From managing project logistics to orchestrating intelligent workflows	Leverages appropriate project management software and tools (including AI tools), technology, and expertise to strengthen team coordination and accelerate project progress (2-3)
UX Design From hand-crafted mockups to AI-accelerated prototyping	Creates a variety of low-fidelity and high-fidelity and interactive prototypes – physical, digital, or hand-drawn – for concept development and evaluation, utilizing AI-powered design tools when appropriate (4-2)

[2] At Google, we use the term 'manager' to refer to the role of the mentor / journeyworker.

How we validate competencies

We employ a focused validation system anchored in Department of Labor (DOL)-approved learning competencies. Using these standards, we require apprentices to achieve 100% proficiency across all required skills to successfully complete the program.

Defining proficiency

Our standard for proficiency aligns with the DOL-recognized National Occupation Frameworks: the ability to perform competency-related tasks independently. This means apprentices can initiate, execute, and troubleshoot typical tasks without direct supervision or constant guidance.

The rating scale

Apprentices are assessed on each competency by their managers over the course of the apprenticeship using the rating scale below. We find that a binary scale simplifies feedback and reduces ambiguity:

Rating	Definition
Proficient	Able to perform all elements of the task consistently and independently
Not yet proficient	Completed the task with significant assistance or unsuccessfully attempted the task

We encourage apprentices and managers to view a "Not yet proficient" rating as a necessary part of the learning journey as it indicates areas where development is needed. Proficiency rarely develops overnight — it is a stack of building blocks collected incrementally over time. We expect apprentices to begin at this rating and progress as they gain experience and calibrate with their managers.

How apprentices demonstrate proficiency

Apprentices demonstrate their skills by providing specific evidence in a program tracker, a spreadsheet used by the apprentice and manager to log, review, and assess proficiency.

We categorize this evidence into two types:

- **Artifact-Based Evidence:** These are tangible outputs like documents, dashboards,
  or design toolkits, etc. For each artifact, apprentices provide a direct link and a brief statement explaining how the work demonstrates the competency.
- **Narrative-Based Evidence:** A written account of a specific scenario or task (used when there isn't a physical file to link). Apprentices use the STAR method[4] to ensure their accounts are measurable and specific.

Self-reflection

To complement their evidence, apprentices reflect on their growth by answering: "How confident do you feel in your ability to perform tasks related to this competency independently?"

This step encourages a moment of honest reflection. If evidence is still developing or support is still needed, their confidence rating should reflect that.

Quality evidence criteria

We prioritize quality over quantity. For the most robust assessment, we ask that all evidence meets four criteria:

Relevance & Alignment	Specificity of Action	Results	Authenticity & Independence
Does the evidence clearly match the competency definition, leaving no room for interpretation?	Does it detail the specific actions the apprentice took and how they applied the relevant skills and knowledge?	Is there a clear outcome? Whether a problem was solved or a process improved, the results must be explicit.	Does the evidence reflect the apprentice's own work and ability to execute without constant guidance?

[4] The STAR method is a well-known technique that Google also recommends as a best practice for interview prep.

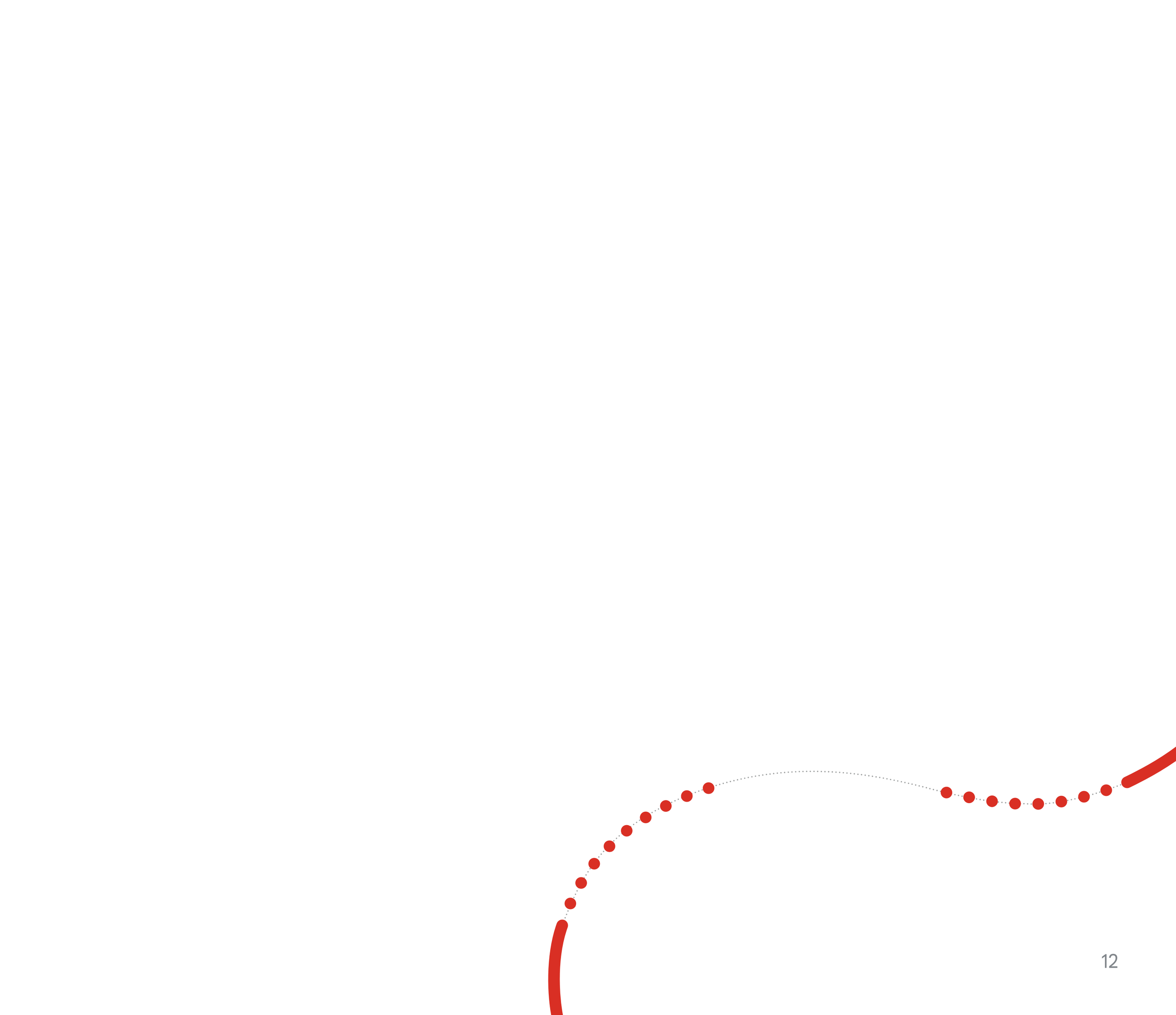
Putting it all together: Our validation process

We structure competency validation as a collaborative review. During weekly 1:1s, apprentices and managers review the evidence tracker together, allowing apprentices to explain their artifacts while managers provide real-time feedback and ask questions.

To help managers determine if the apprentice has reached the “Proficient” bar, we provide a checklist:

- **Independence:** Does the evidence show the apprentice can complete these tasks independently?
- **Quality:** Does the evidence reflect the quality of work expected for an entry-level professional?
- **Consistency:** Would a peer or other manager agree with my assessment?

If the manager rates the evidence as “Proficient”, the competency is marked complete. If they rate it “Not Yet Proficient,” they provide specific feedback on which “building blocks” are still missing. This ensures that a “Not Yet Proficient” rating is never a dead end, but a clear roadmap of exactly what the apprentice needs to do to reach proficiency.



Guides

Responsible AI for apprenticeships

Artificial intelligence (AI), especially generative AI, offers powerful new tools for organizations looking to enhance efficiency and drive growth. However, when deploying AI, it is critical to use it responsibly. This resource will offer practices and strategies for responsibly integrating AI.

Understanding AI

Advancements in AI technology are reshaping the possibilities of daily work. To prepare for using the latest technology effectively, it is important to understand three core concepts:

- **Artificial Intelligence (AI):** AI is a field of computer science focused on creating smart machines designed to simulate human intelligence, like thinking or learning.
- **Generative AI:** Generative AI is a specific type of AI that can generate new content such as text, images, or other media. Organizations can use Generative AI for tasks like drafting social media posts, synthesizing marketing research, combining various data sources, and more.
- **Agentic AI:** The type of AI that involves AI agents. AI agents are systems that combine advanced AI models with access to your everyday tools like email, calendars, or documents. This allows them to take action on your behalf and under your control.

Tools with AI technology act as digital collaborators, empowering staff to tackle complex tasks more efficiently, make data-driven decisions, and unlock new levels of creativity. Imagine drafting detailed competency frameworks, creating personalized learning projects that align with an apprentice's career goals, or analyzing program data to pinpoint areas for improvement – all with the assistance of AI.

Responsible AI practices and strategies

While AI offers great potential for improving the efficiency and impact of your program, it's important to establish responsible practices when using this technology. Practices that mitigate bias, ensure accuracy, respect privacy, and disclose AI usage will help your program — and your apprentices — navigate generative AI responsibly.

Mitigate bias

As with all data-driven systems, it's important to be mindful of potential biases that can influence the outputs from AI tools. Biases might come from the training data used to develop the AI, or from the prompts and information that users provide. To mitigate bias and utilize AI tools responsibly, follow the **ACT Responsibly framework:**

A – Ask

Ask if this task is appropriate for AI. Start with low-stakes, repetitive tasks. Reconsider using AI when the task involves confidential data, high-stakes empathy, or “final” decision-making. AI should assist humans, not replace them.

C – Check

Check AI-generated outputs before using them. Always verify facts when extracting insights. Review the output for:

- Accuracy: Use reliable sources to confirm statistics.
- Bias: Ensure the content is fair and representative of your community.
- Mission Alignment: Ensure the tone matches your organization’s authentic voice.

T – Tell

Tell people when you use AI. Transparency is the idea that you should be open about how a tool was used. Disclose to your stakeholders when content was drafted by AI and always take responsibility for the final output.

Ensure accuracy

As part of the “C” in the “ACT” framework above, checking for accuracy is key when working with AI tools as they can sometimes “hallucinate,” which happens when the output is not true. These hallucinations can occur for a number of reasons, including incomplete data used by the AI tool.

Because AI lacks the depth of experience, practical knowledge, and empathy that experienced professionals possess, a "human-in-the-loop" strategy is essential. This approach uses a combination of machine and human intelligence to train, verify, and refine AI outputs.

Remember: AI output should always be viewed as a draft or suggestion that requires your expertise for critique and verification. While AI offers great potential for improving efficiency and impact, it's important to establish responsible practices when using AI tools. Practices that prioritize fairness, accuracy, the protection of privacy, and an overall ethical approach will help your organization navigate AI responsibly.

While using AI responsibly, the following strategies can help your organization focus on accuracy when using AI for your work.

- **Provide clear and specific prompts.** When writing prompts for generative AI tools, use natural language in a clear and concise way, and provide plenty of context for your request. Avoid vague or open-ended prompts that could lead to inaccurate results.
- **Fact-check outputs**. Verify the accuracy of any information generated by AI. Use reliable sources from your own research to confirm the information.
- **Be aware of limitations.** Understand that generative AI is still under development and has limitations. For tasks requiring high degrees of accuracy, consider using resources other than AI to support the completion of your task.

Respect privacy

Whether you're using AI to assist with basic tasks or create new content, consider how this usage may affect privacy and security. The following strategies can help ensure that your organization is mitigating privacy and security concerns when using AI.

- **Review privacy policies.** Read through AI tool documentation to learn about privacy safeguards the developers have established, including terms and conditions. Research to stay up-to-date on privacy regulations and best practices for AI usage.
- **Consider your data input.** Consider how an AI tool could use sensitive data, such as private, or personally identifiable information (including wage information and disciplinary records), and confidential business information and whether such information should be deleted before interacting with such tools.
- **Create guidelines for apprentice use of AI.** In general, apprentices should follow your company's AI policy. Ensure these practices are modeled by mentors and consistently practiced within hosting teams so apprentices see responsible AI usage in action. (See below for guidance on creating a policy.)

Disclose AI usage

As part of the "T" in the "ACT" framework above, disclosing your use of AI to customers, users and the public is becoming an industry standard and models the use of ethical practices for your apprentices. The following strategies can help ensure transparency when using AI for your work.

- **Make it clear whenever you use AI.** Disclose to your users that you are using AI tools and why.
- **Provide details**. Explain what type of tool you used and your intention for its use. Offer any other information that could help anyone with access to your organization's output evaluate potential risks from use of AI tools.
- **Content integrity.** Require human involvement by reviewing and revising all AI-generated content. This ensures accuracy and preserves your organization's unique expertise and voice.

Resources for Responsible AI usage

Organizations of all kinds are navigating how to leverage AI responsibly for their work. Your organization may find the following external resources helpful when developing your own internal policies:

- **Google AI Professional Certificate.** A hands-on training that further explores the elements of the ACT Responsibly framework through applied practice.
- **How to Create a Generative AI Use Policy.** A how-to guide from TechSoup for creating an AI use policy for your organization.
- Google's **AI Principles.** Examples of practices and principles for the design and development of AI systems.

Registered Apprenticeship Standards

Data Analytics

RAPIDS Code: **2079** O*NET Code: **15-2051.00**

Estimated Program Length: **18 months**

Apprenticeship Type: **Competency-Based**

Registered Apprenticeship Standards

Data Analytics Work Process Schedule: Job Functions & Competencies

Job Function 1

Assists team in developing plans of analysis, proposals, or other documents delineating data and research activities

1. With support, identifies research questions and methodologies for analysis products
2. Follows a formulated work plan, including timeline, data life cycle, and work process schedule (as needed) for analysis plans or proposals leveraging AI technology when appropriate
3. With support, collaborates in producing non-research documents needed for proposals
4. Assists team in determining what data to collect to measure the identified conceptual problems
5. Evaluates the appropriateness of prospective data for the identified conceptual problems, including assessing data quality
6. Identifies relationships and trends in the data or any factors that could affect the results of research
7. With support, applies sampling techniques to determine groups to be surveyed or uses complete enumeration methods

Job Function 2

Collects and cleans secondary data

1. Collaborates in collecting data and documentation, storing it in an effective manner for a project's needs, leveraging AI tools and technologies when applicable
2. Demonstrates the ethical handling of secondary data outlined in organizational protocols and data sharing agreements as relevant
3. Writes well-documented, understandable, and efficient code in reproducible cleaning procedures, leveraging AI tools and technologies and typical statistical software (e.g., SQL, Python, R, Stata), to clean data
4. Documents work along the way, using organizational protocols and following guidelines
5. Demonstrates the ability to transform, merge, or append existing datasets as needed
6. Creates new columns of data (variables) in a structured data table from existing datasets
7. Implements methods for working with missing data and documenting sources of missing data
8. Collaborates in creating an efficient workflow
9. Demonstrates knowledge of major relevant datasets for the area of focus, including the ability to explain basic information on a relevant dataset when requested
10. Identifies and extracts pertinent information from a dataset leveraging AI-powered tools when appropriate, ensuring that the selected data aligns with the research objectives or analytical needs

Job Function 3

Assists in primary data (survey) collection efforts

1. With guidance, works with survey collection software (e.g. Qualtrics, SurveyMonkey), effectively building surveys and troubleshooting as needed
2. Collaborates in collecting survey data from respondents, communicating survey questions and capturing responses effectively, as needed
3. With support, collaborates in executing sampling procedures, determining sample respondents, and maintaining outreach logs
4. Abides by internal and external data security procedures to secure the safety of sensitive information collected during the survey process
5. Ensures proper protection of data by following established security protocols
6. Using company best practices, conducts and maintains organizational quality control procedures of data
7. Solicits feedback using generative interviewing throughout the development period from internal and external stakeholders
8. Combines multiple external data sources and primary survey data together using statistical software or SQL

Job Function 4

Analyzes data

1. Conducts descriptive analyses of results, producing basic statistical metrics such as mean, median, etc., in a format desired by the client or stakeholder
2. Analyzes, manipulates, or processes large sets of data using statistical software and AI-powered tools (when appropriate) in an efficient manner to produce insights in the form of data points to clients or stakeholders
3. Produces, summarizes, and visualizes key metrics, according to the needs of clients and stakeholders, using statistical and data visualization, dashboard tools and AI-powered technology when appropriate
4. Writes new functions or applications in programming language to collect and transform data into analyses, using both traditional methods and generative AI

Job Function 5

Assesses and interprets results

1. Uses data and sense checks, compares against previous research, and/or consults with experts to assess validity
2. Assesses reliability of results by examining the context in which the data originated, reviewing the source data’s documentation, and creating data codebooks for others to understand the data tables they produce
3. Analyzes data from dashboards, metrics, or other estimates based on their own analysis to identify potential solutions to key organizational questions
4. Analyzes data from graphs and tables (descriptive statistics, regression results), based on their own analysis, to identify trends or relationships among variables

Job Function 6

Conveys findings to key stakeholders

1. Using data visualization tools, creates graphical data visualizations of analytical findings to convey results, leveraging AI when appropriate
2. Writes reports of analytical findings utilizing AI-powered tools when appropriate
3. Prepares and delivers presentations of analytical findings to management or other end users using data storytelling practices to ensure understanding by both technical and nontechnical parties
4. Conveys issues and concerns to supervisor and team leads
5. Conveys findings to stakeholders to inform data driven decision making process
6. Recommends data-driven solutions to stakeholders

Job Function DS

Demonstrates use of durable skills in the workplace

1. Communicates effectively and thoughtfully in both written and verbal formats
2. Gives, receives and acts upon constructive feedback
3. Demonstrates effective and proactive problem solving
4. Acts as a reliable teammate and peer when working collaboratively
5. Utilizes time management strategies and effectively prioritizes tasks to meet deadlines
6. Takes accountability and ownership of assigned work and its outcomes
7. Actively pursues opportunities for learning and development to adapt to new challenges and evolving technologies

Job Function AI

Practices effective and responsible AI use in the workplace

1. Evaluates the strengths, risks, and limitations (e.g., outdated data) of AI models and tools to determine their appropriateness for specific tasks
2. Uses AI tools to enhance productivity and creativity, and to support problem solving
3. Creates and refines AI inputs (e.g., prompts) using clear context and constraints to maximize the relevance and accuracy of outputs
4. Critically reviews AI-generated outputs for accuracy, bias, and completeness, validating against trusted sources
5. Protects personal, proprietary, and client data by adhering to organizational AI policies and using approved tools
6. Assumes full accountability for final decisions and deliverables, ensuring proper disclosure and citation for AI-generated content
7. Contributes to the advancement of responsible AI by sharing successful strategies and lessons learned, documenting risks and reporting errors

Data Analytics Related Technical Instruction (RTI) Outline

Google's company-wide required trainings for engagement
Apprentices will complete several required trainings.

Google's Orientation

In the ten days of apprentice orientation, apprentices will be fully immersed in self-study and instructor-led sessions designed to help apprentices have a strong start in the program. Topics addressed include, but are not limited to: durable skills; corporate norms and ways of working; Google Workspace tools; giving and receiving feedback; time management; DOL competencies and requirements, etc. Apprentices will also complete the Google AI Professional Certificate to introduce them to the role AI can play in improving productivity, efficiency and creativity in the workplace.

Launchpad

The next phase of the program is a six-week virtual learning intensive we call Launchpad. During this time, apprentices complete the first four courses of the Google Data Analytics Career Certificate and participate in regular instructor-led sessions taught by our training partner. This frontloading of RTI provides foundational exposure to the skills and knowledge they'll encounter once they join their teams. Launchpad will consist of:

- **Project Debrief & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course. The purpose is to allow apprentices and instructors the opportunity to troubleshoot any areas of misunderstanding, build community, and reflect on and extend learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Learning Pods:** At the end of every day, apprentices will meet in a small group to build community, review learnings and work together to answer questions apprentices may have.
- **Instructor office hours** to help guide their work.
- **Professional Development workshops** (1x week) to prepare apprentices for entry into Google. Topics include, but are not limited to: time management, growth mindset, communication, public speaking, and problem solving.

Course 1

Foundations: Data, Data, Everywhere

Organizations of all kinds need data analysts to help them improve their processes, identify opportunities and trends, launch new products, and make thoughtful decisions. In this course, you'll be introduced to the world of data analytics through hands-on curriculum developed by Google. The material shared covers plenty of key data analytics topics, and it's designed to give you an overview of what's to come in the Google Data Analytics Certificate. Current Google data analysts will instruct and provide you with hands-on ways to accomplish common data analyst tasks using the best tools and resources.

Learning Objectives:

- Understand practices and processes used by a junior or associate data analyst in their day-to-day job.
- Learn about key analytical skills such as data cleaning, data analysis, as well as tools like spreadsheets, SQL, Tableau AI, and R.
- Explore Artificial Intelligence (AI) in data analytics, and identify its capabilities and limitations when applying AI tools to workplace tasks.
- Discover a wide variety of terms and concepts relevant to the role of a junior data analyst, such as the data life cycle and the data analysis process.
- Evaluate the role of analytics in the data ecosystem.
- Conduct an analytical thinking self-assessment.
- Explore job opportunities available in the field and learn about best practices in the job search.

Course 2

Ask Questions to Make Data-Driven Decisions

In this course, learners will build on their understanding of the previously introduced topics. The material will help learners develop the skills to ask effective questions, make data-driven decisions, and meet stakeholders' needs.

Learning Objectives:

- Use effective questioning techniques that can help guide analysis.
- Understand data-driven decision-making and how data analysts present findings.
- Evaluate a variety of business scenarios to support an understanding of questioning and decision-making.
- Use spreadsheets as an important analytical tool.
- Examine the key ideas associated with structured thinking and better understand problems and how to develop solutions.
- Use strategies for managing the expectations of stakeholders while establishing clear communication with a data analytics team to achieve business objectives.

Course 3

Prepare Data for Exploration

As learners continue to build on the skills they acquired in the previous courses, they'll be introduced to new topics that will help them gain practical data analytics skills. They'll learn how to use tools like spreadsheets and SQL to extract and make use of the right data for their objectives, and how to organize and protect their data.

Learning Objectives:

- Decide what data to collect for analysis.
- Understand structured and unstructured data, data types, and data formats.
- Discover how to identify different types of bias in data to help ensure data credibility.
- Explore how analysts use spreadsheets and SQL within databases and data sets.
- Examine open data and the importance of data ethics and data privacy.
- Gain an understanding of how to access databases and extract, filter, and sort the data they contain.
- Review best practices for organizing data and keeping it secure.

Course 4

Process Data from Dirty to Clean

In this course, learners will continue to develop their understanding of data analytics and the tools that data analysts use in their work. They'll learn how to check and clean their data using spreadsheets and SQL, as well as how to verify and report their data cleaning results.

Learning Objectives:

- Understand how to check for data integrity.
- Apply data cleaning techniques using spreadsheets.
- Develop basic SQL queries for use on databases.
- Use basic SQL functions to clean and transform data.
- Verify the results of cleaning data.
- Write an effective data cleaning report.

Phase 2

After Launchpad, apprentices join their teams at Google and enter into Phase 2 of related technical instruction. During Phase 2, apprentices complete the remaining courses of their Google Career Certificate and begin applying their newly acquired skills on the job at Google. They also continue to participate in regular instructor-led sessions taught by our training partner, including:

- **Project Debriefs & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course. The purpose is to allow apprentices and instructors the opportunity to troubleshoot any areas of misunderstanding, build community, and reflect on and extend learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Instructor office hours** to help guide their work.

Course 5

Analyze Data to Answer Questions

In this course, learners will explore what it means to analyze their data. They'll take what they've learned up to this point and apply it to make sense of the data they've collected. They'll learn how to organize and format their data using spreadsheets and SQL to help examine their data in different ways. They'll also perform complex calculations with their data to address business objectives. Finally, they'll learn how to use formulas, functions, and SQL queries as they conduct their analysis.

Learning Objectives:

- Be able to organize data for analysis.
- Understand the processes for formatting and adjusting data.
- Explore how to aggregate data in spreadsheets and by using SQL.
- Use formulas and functions in spreadsheets to make data calculations.
- Complete calculations using SQL queries.

Course 6

Share Data Through the Art of Visualization

Learners will discover how to visualize and present their data findings as they complete the data analysis process. This course will show them how data visualizations such as visual dashboards can help bring their data to life. They'll also explore Tableau, a data visualization platform that will help them create effective visualizations for their presentations.

Learning Objectives:

- Understand the importance of data visualization.
- Form a compelling narrative through data stories.
- Gain an understanding of how to use Tableau to create dashboards and dashboard filters.
- Discover how to use Tableau to create effective visualizations.
- Explore the principles and practices involved in creating effective presentations.
- Consider potential limitations associated with the data used in presentations.
- Understand how to apply best practices to a Q&A with an audience.

Course 7

Introduction to Data Analysis Using Python

The Python programming language is a powerful tool for data analysis. In this course, learners will discover the basic concepts of Python programming and how data professionals use Python on the job. Learners will explore concepts such as syntax, loops, strings, lists, dictionaries, and object-oriented programming.

Learning Objectives:

- Define what a programming language is and why Python is used by data analysts.
- Create Python scripts to display data and perform operations.
- Control the flow of programs using conditions and functions.

- Utilize different types of loops when performing repeated operations.
- Identify data types such as integers, floats, strings, and booleans.
- Manipulate data structures such as lists, tuples, dictionaries, and sets.
- Import and use Python libraries such as NumPy and pandas.

Course 8

Google Data Analytics Capstone: Complete a Case Study

Learners will have the opportunity to complete a case study to help prepare them for their data analytics job search. Case studies are commonly used by employers to assess analytical skills. For their case study, learners will choose an analytics-based scenario. They'll then ask questions, prepare, process, analyze, visualize, and act on the data from the scenario. Finally, they'll learn about useful job searching skills, common interview questions and responses, and will review materials to build a portfolio online.

Learning Objectives:

- Understand the benefits and uses of case studies and portfolios in the job search.
- Explore common job interview scenarios and questions.
- Discover how case studies can be a part of the job interview process.
- Examine and consider different case study scenarios.
- Have the chance to complete their own case study for their portfolio.

Digital Marketing

RAPIDS Code: **2077** O*NET Code: **13-1161.01**

Estimated Program Length: **18 months**

Apprenticeship Type: **Competency-Based**

Registered Apprenticeship Standards

Digital Marketer Work Process Schedule: Job Functions & Competencies

Job Function 1

Supports the design and implementation of a digital marketing strategy

1. With support, designs strategies that utilize the different parts of the marketing funnel to help drive engagement, conversion, and loyalty
2. Aligns digital marketing efforts with business objectives, as well as insights into the product, customer, market, and competition
3. Identifies appropriate Key Performance Indicators (KPIs) and reports key metrics from digital campaigns
4. Contributes to the creation of content strategies for digital media, utilizing AI tools to suggest text, graphic, and video content when appropriate
5. Collaborates with marketing teams to develop and implement marketing campaigns to drive business results
6. Supports the implementation of online marketing initiatives, such as paid ad placement, affiliate programs, sponsorship programs, email promotions, and viral marketing campaigns on social media sites
7. Collaborates to adapt and tailor marketing strategies across multiple channels
8. Coordinates project activities with other personnel or departments

Job Function 2

Supports E-Commerce Strategy Development and Implementation

1. Contributes to the optimization of shopping cart experience or website conversion rates against Key Performance Indicators (KPIs)
2. Proposes online or multiple-sales-channel campaigns to stakeholders
3. Supports the coordination of sales or other promotional strategies with merchandising, operations, or inventory control staff to ensure product catalogs are current, accurate, and organized for best findability against user intent
4. Supports the design and implementation of online customer service processes to ensure positive and consistent user experiences

Job Function 3

Optimizes Digital Assets

1. Optimizes digital assets, such as text, graphics, or multimedia assets, for search engine optimization (SEO) or for display and usability on internet-connected devices
2. Coordinates with developers to optimize website architecture, server configuration, or page construction for search engine consumption and optimal visibility
3. Collaborates with digital, multimedia, or art design teams to mock up and create graphics, multimedia websites and other internet content that conforms to brand and company visual format utilizing AI-generated assets as appropriate

Job Function 4

Conducts Market Research

1. Conducts and presents market research analysis to uncover insights aligned to marketing goals
2. Evaluates new emerging media or technologies and makes recommendations for their application
3. Utilizes audience segmentation and user journey mapping to develop effective, targeted marketing strategies

Job Function 5

Uses SEO Optimization to Drive Business Objectives

1. Optimizes website exposure by analyzing search engine patterns and strategically incorporating keywords into content, leveraging AI when applicable
2. Executes or manages social media campaigns and other high quality content creation (eg, blog posts, articles, etc) to inform search marketing tactics
3. Supports the improvement of search-related activities through ongoing analysis, experimentation, or optimization tests, using A/B or multivariate methods
4. Supports the development and implementation of off-page and local SEO marketing tactics

Job Function 6

Analyzes Marketing Data

1. With support, selects and uses appropriate tools for most effective marketing data analysis and presentation, including the use of AI to automate collection, generate reports, and identify key insights when applicable
2. Manages tracking and reporting of search-related activities and provides analyses to marketing stakeholders
3. Collects and analyzes web metrics, such as visits, time on site, page views per visit, transaction volume and revenue, traffic mix, click-through rates, conversion rates, cost per acquisition, or cost per click
4. Assists in setting up or optimizing analytics tools for tracking visitors' behaviors
5. Participates in evaluating digital marketing initiative return on investment (ROI)
6. Analyzes and communicates insights from market or customer-related data, incorporating AI-generated insights alongside traditional data analysis

Job Function DS

Demonstrates use of durable skills in the workplace

1. Communicates effectively and thoughtfully in both written and verbal formats
2. Gives, receives and acts upon constructive feedback
3. Demonstrates effective and proactive problem solving
4. Acts as a reliable teammate and peer when working collaboratively
5. Utilizes time management strategies and effectively prioritizes tasks to meet deadlines
6. Takes accountability and ownership of assigned work and its outcomes
7. Actively pursues opportunities for learning and development to adapt to new challenges and evolving technologies

Job Function AI

Practices effective and responsible AI use in the workplace

1. Evaluates the strengths, risks, and limitations (e.g., outdated data) of AI models and tools to determine their appropriateness for specific tasks

2. Uses AI tools to enhance productivity and creativity, and to support problem solving
3. Creates and refines AI inputs (e.g., prompts) using clear context and constraints to maximize the relevance and accuracy of outputs
4. Critically reviews AI-generated outputs for accuracy, bias, and completeness, validating against trusted sources
5. Protects personal, proprietary, and client data by adhering to organizational AI policies and using approved tools
6. Assumes full accountability for final decisions and deliverables, ensuring proper disclosure and citation for AI-generated content
7. Contributes to the advancement of responsible AI by sharing successful strategies and lessons learned, documenting risks and reporting errors

Digital Marketer Related Technical Instruction (RTI) Outline

Google's company-wide required trainings for engagement
Apprentices will complete several required trainings.

Google's Orientation

In the ten days of apprentice orientation, apprentices will be fully immersed in self-study and instructor-led sessions designed to help apprentices have a strong start in the program. Topics addressed include, but are not limited to: durable skills; corporate norms and ways of working; Google Workspace tools; giving and receiving feedback; time management; DOL competencies and requirements, etc. Apprentices will also complete the Google AI Professional Certificate to introduce them to the role AI can play in improving productivity, efficiency and creativity in the workplace.

Launchpad

The next phase of the program is a six-week virtual learning intensive we call Launchpad. During this time, apprentices complete the first four courses of the Google Digital Marketing & E-commerce Career Certificate and participate in regular instructor-led sessions taught by our training partner. This frontloading of RTI provides foundational exposure to the skills and knowledge they'll encounter once they join their teams. Launchpad will consist of:

- **Project Debrief & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course to allow apprentices and instructors the opportunity to troubleshoot, build community, and reflect on learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Learning Pods:** At the end of every day, apprentices will meet in a small group to build community, review learnings and work together to answer questions.
- **Instructor office hours** to help guide their work.
- **Professional Development workshops** (1x week) to prepare apprentices for entry into Google on topics like time management, growth mindset, and communication.

Course 1

Foundations of Digital Marketing and E-commerce

In the first course of the Digital Marketing and E-commerce Career Certificate, learners will be introduced to the job fields of digital marketing and e-commerce. They will explore entry-level jobs in digital marketing and e-commerce, and identify the roles and functions that those jobs play within an organization. The course also introduces the topics covered in the program.

Learning Objectives:

- Define the fields of digital marketing and e-commerce.
- Describe the job responsibilities of an entry-level digital marketing coordinator and e-commerce analyst (and similar job titles).
- Summarize how this program will help prepare them for a career in digital marketing and e-commerce.
- Identify the roles and functions that digital marketing and e-commerce play within an organization.
- Understand the customer journey and the function of journey maps.
- Explain the concept of a marketing funnel.
- Understand the elements and goals of a digital marketing and e-commerce strategy.

Course 2

Attract and Engage Customers with Digital Marketing

In this course, learners will practice using search engine optimization (SEO), search engine marketing (SEM), and display advertising to attract and engage customers online. Learners will explore the stages of the marketing funnel and learn how to use digital marketing tactics to move customers through the stages. Learners will learn how to increase the quality and quantity of website traffic by understanding SEO fundamentals like keyword research, search engine algorithms, and link building. They will also learn about paid search and advertising, and explore tactics used to gain visibility and reach potential customers on search engine results pages, or SERPs.

Learning Objectives:

- Identify customer personas and build a target audience.
- Describe the marketing funnel's purpose and benefits.
- Know how to increase conversion rate.
- Explain the purpose of SEO and the essential SEO terms to know.
- Use Google Search Console and its reports to monitor a site's presence in Google Search results.
- Recognize the benefits of SEM and why to do it.
- Understand the fundamentals of Google Ads and targeting audiences.

Course 3

From Likes to Leads: Interact with Customers Online

In this course, learners will explore social media platforms and identify which platform is the most appropriate for specific business needs. Learners will learn how to create content for social media using graphic design principles for marketers and learn how to manage a social media presence. In addition, they will set goals and success metrics for social media ads.

Learning Objectives:

- Identify the five core pillars of social media marketing: strategy, planning and publishing, listening and engagement, analytics and reporting, and advertising.
- Determine how to choose social media platforms for a campaign.
- Understand how to boost engagement on social media.
- Learn how to write, design, and repurpose engaging content for social media.
- Recognize how to use the data gathered from social media analytics as a decision-making tool.
- Learn best practices for presenting a social media report.
- Achieve specific marketing goals through the use of paid social media.

Course 4

Think Outside the Inbox: Email Marketing

In this course, learners will explore email marketing and cover topics like: creating an email marketing strategy, executing email campaigns, and measuring the results of those campaigns. They will also learn how to use mailing lists and utilize automation and workflows.

Learning Objectives:

- Write effective preview text and subject lines using best practices.
- Create email marketing automation and workflows.
- Build and maintain email lists.
- Write effective email copy.
- Conduct contact management and list segmentation.
- Employ best practices to handle personally identifiable information, or PII, and user data safely.
- Measure and analyze email campaign results.

Course 5

Assess for Success: Marketing Analytics and Measurement

In this course, learners will learn how to measure, manage, and analyze data from marketing campaigns using Google Analytics, Google Ads, and similar tools. Then, learn how to adjust a marketing budget according to insights extracted from key metrics. They will use A/B test results to optimize a campaign and identify metrics that define a campaign's success and analyze and visualize data and insights in spreadsheets and prepare presentations to share campaign progress or results with stakeholders.

Learning Objectives:

- Plan and allocate the spending of marketing budgets.
- Describe the unique role of performance goals and key performance indicators (KPIs) in marketing campaigns.
- Describe how tools like Google Analytics and Google Ads are used to measure website and ad campaign performance.
- Describe how to determine the return on investment (ROI) or return on ad spend (ROAS) of a marketing project.
- Prepare, conduct, and analyze the results from an A/B test to optimize a marketing campaign.
- Apply spreadsheet features like sorting, filtering, and pivot tables to prepare data to be shared.
- Create charts in spreadsheets for visualization of metrics.

Phase 2

After Launchpad, apprentices join their teams at Google and enter into Phase 2 of related technical instruction. During Phase 2, apprentices complete the remaining courses of their Google Career Certificate and begin applying their newly acquired skills on the job at Google. They also continue to participate in regular instructor-led sessions taught by our training partner, including:

- **Project Debriefs & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course. The purpose is to allow apprentices and instructors the opportunity to troubleshoot any areas of misunderstanding, build community, and reflect on and extend learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Instructor office hours** to help guide their work.

Course 6

Make the Sale: Build, Launch, and Manage E-commerce Stores

In this course, learners will explore how businesses and individuals sell products online, including using popular platforms like Shopify. They will go through the process of creating a mock e-commerce store. To do this, learners will build a Shopify store, add the necessary information, and create product listings. They will explore how to reach customers online through e-commerce customer outreach methods like advertisements and campaigns.

Learning Objectives:

- Understand essential e-commerce strategies and practices.
- Explain how to conduct market research and product research.
- Set up a mock e-commerce store using Shopify.
- Use Google Ads to engage e-commerce customers.
- Explain how trends and seasonality affect e-commerce businesses.
- Use best practices to create an engaging customer experience online.
- Describe the order fulfillment process through checkout, point of sale (POS), shipping, and delivery.
- Optimize a checkout flow for customers.

Course 7

Satisfaction Guaranteed: Develop Customer Loyalty Online

In this course, learners will explore strategies for building customer loyalty in e-commerce. They will also explore specific tools to develop and maintain client relationships. At the end of the course, learners will work through a scenario that demonstrates their ability to deliver a successful e-commerce strategy. Finally, learners will wrap up the course by building professional development skills.

Learning Objectives:

- Identify common strategies for building customer loyalty in e-commerce.
- Understand how to successfully manage client relationships and measure satisfaction.
- Monitor an e-commerce store's performance.
- Update an e-commerce store based on data.
- Complete a portfolio scenario to prepare for job interviews.
- Find, apply for, and prepare for interviews and jobs.
- Put together a portfolio and/or resume to present to employers.

IT Support

RAPIDS Code: **1059** O*NET Code: **15-1232.00**

Estimated Program Length: **18 months**

Apprenticeship Type: **Competency-Based**

Registered Apprenticeship Standards

IT Support Specialist Work Process Schedule: Job Functions & Competencies

Job Function 1

Sets up and removes employee or client workstations or devices, including setting up access controls

1. Assists with set up of desktop, laptop, mobile devices and other devices for employees
2. Helps install software on network or individual users' computers, laptops, or devices and sets appropriate access controls or authorities
3. Assists in setting up user identifications and passwords and implements policies regarding passwords and user/administrator permissions
4. Establishes (with network team) secure external connections to network or desktops using secure remote access technology
5. Installs printers on networks or individual devices
6. Sets up and maps network drives, employee folders, and centralized data repositories
7. Sets up email accounts for users or systems, establishing storage limits, quota or backup parameters
8. Maintains and manages software licenses
9. Assists with restricting or removing users access to organizational resources such as network, data and files, workstations, and turning off devices for users exiting the organization or prohibited from using IT resources

Job Function 2

Installs, provides user support for, or troubleshoots hardware and commercial software

1. Uses internal knowledge bases, Artificial Intelligence (AI), Machine Learning (ML) or other job aids to troubleshoot hardware or software faults
2. Assists with or replaces or upgrades hardware components
3. Uses logic to discover the source of faults and recommends appropriate solutions
4. Demonstrates ability to use essential software, including set-up of preferred default settings, instructs other users on the basic features of standard software packages, and identifies and remedies typical faults in relevant software packages
5. Identifies situations in which the fault must be escalated to a higher-level technology support individual, including an outside vendor
6. Contacts outside vendors or support teams to solve or escalate complex problems or procure software patches
7. Uses a ticketing system and prioritizes tickets or requests for help based on business need, staff hierarchy, or urgency of problem
8. Maintains records of activities performed during support interactions, including problem description, remediation actions taken or installation activities

9. Answers user inquiries regarding computer software or hardware operation to resolve problems
10. Documents IT solutions and best practices using standard tools, including Artificial Intelligence (AI) or Machine Learning (ML)
11. Assists with software patches and updates

Job Function 3

Supports internal or external clients in the use of audio/visual technology and conference technology

1. Demonstrates understanding of audiovisual equipment, including projectors, screens, cameras, and related devices
2. Installs, launches, operates and troubleshoots software designed to facilitate presentations, web-based conferencing, and audio conferencing
3. Tests equipment and software before use to ensure sound and video quality is acceptable
4. Manages or troubleshoots web-based or video conferences on behalf of staff members of organization
5. Sets up user accounts on voice technologies or systems and mobile devices

Job Function 4

Installs, maintains, and troubleshoots networks and cloud systems

1. Installs, maintains, and troubleshoots computer systems and wired/wireless networks
2. Connects devices to networks physically and uses remote access technologies
3. Uses network diagnostic tools (e.g., ping, tracert)
4. Installs network security software and devices on end user equipment
5. Assists in setting up, configuring, and managing computer resources, including virtual machines
6. Sets up or manages user identification parameters on cloud services
7. Monitors or assists in monitoring cloud resource usage, efficacy of data back-up and storage systems, and integrity of redundant systems or technologies
8. Displays basic working knowledge of cloud service uses, including AI/ML cloud-based solutions (e.g., AWS, Azure, VMWare, Compute, Vertex AI, Cloud storage)

Job Function 5

Monitors and helps maintain network security by adhering to security policies

1. Monitors adherence to password policies, including enforcement of password update intervals
2. Sets user access levels and permissions based on organizational policies and employees' job roles
3. Monitors antivirus software (e.g., Norton, McAfee) to understand potential threats and updates as needed
4. Shows foundational knowledge of the current cyber threat levels and mechanisms for responding to threats
5. Ensures that encryption technology and access controls are utilized to protect sensitive data
6. Ensures that offsite staff are using secure connections to access network
7. Assists in or monitors the use of backup technologies and network redundancies to minimize risk
8. Demonstrates foundational knowledge of malware and basic protection measures
9. Supports and coordinates with other organization divisions when signs of hacking intrusions or viruses are found, escalating when necessary

Job Function 6

Develops and applies IT project management skills and knowledge

1. Collaborates with stakeholders to define IT project requirements and objectives
2. Supports the planning, coordinating, and execution of IT projects within established timelines and budgets
3. Assists with monitoring project progress and communicates updates to relevant parties
4. Assists with post-implementation reviews to evaluate project success and identifies areas for improvement
5. Assists with identifying opportunities for leveraging AI and/or automation to streamline project management

Job Function DS

Demonstrates use of durable skills in the workplace

1. Communicates effectively and thoughtfully in both written and verbal formats
2. Gives, receives and acts upon constructive feedback
3. Demonstrates effective and proactive problem solving
4. Acts as a reliable teammate and peer when working collaboratively
5. Utilizes time management strategies and effectively prioritizes tasks to meet deadlines
6. Takes accountability and ownership of assigned work and its outcomes
7. Actively pursues opportunities for learning and development to adapt to new challenges and evolving technologies

Job Function AI

Practices effective and responsible AI use in the workplace

1. Evaluates the strengths, risks, and limitations (e.g., outdated data) of AI models and tools to determine their appropriateness for specific tasks
2. Uses AI tools to enhance productivity and creativity, and to support problem solving
3. Creates and refines AI inputs (e.g., prompts) using clear context and constraints to maximize the relevance and accuracy of outputs
4. Critically reviews AI-generated outputs for accuracy, bias, and completeness, validating against trusted sources
5. Protects personal, proprietary, and client data by adhering to organizational AI policies and using approved tools
6. Assumes full accountability for final decisions and deliverables, ensuring proper disclosure and citation for AI-generated content
7. Contributes to the advancement of responsible AI by sharing successful strategies and lessons learned, documenting risks and reporting errors

IT Support Specialist Related Technical Instruction (RTI) Outline

Google's company-wide required trainings for engagement
Apprentices will complete several required trainings.

Google's Orientation

In the ten days of apprentice orientation, apprentices will be fully immersed in self-study and instructor-led sessions designed to help apprentices have a strong start in the program. Topics addressed include, but are not limited to: durable skills; corporate norms and ways of working; Google Workspace tools; giving and receiving feedback; time management; DOL competencies and requirements, etc. Apprentices will also complete the Google AI Professional Certificate to introduce them to the role AI can play in improving productivity, efficiency and creativity in the workplace.

Launchpad

The next phase of the program is a six-week virtual learning intensive we call Launchpad. During this time, apprentices complete the first three courses of the Google IT Support Career Certificate and participate in regular instructor-led sessions taught by our training partner. This frontloading of RTI provides foundational exposure to the skills and knowledge they'll encounter once they join their teams. Launchpad will consist of:

- **Project Debrief & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course. The purpose is to allow apprentices and instructors the opportunity to troubleshoot any areas of misunderstanding, build community, and reflect on and extend learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Learning Pods:** At the end of every day, apprentices will meet in a small group to build community, review learnings and work together to answer questions apprentices may have.
- **Instructor office hours** to help guide their work.
- **Professional Development workshops** (1x week) to prepare apprentices for entry into Google. Topics include, but are not limited to: time management, growth mindset, communication, public speaking, and problem solving.

Course 1

Technical Support Fundamentals

In the first course of the IT Support Career Certificate, we introduce the world of Information Technology, or IT. We cover the different facets of Information Technology, like computer hardware, the Internet, computer software, troubleshooting, and customer service.

Learning Objectives:

- Understand how the binary system works.
- Assemble a computer from scratch.
- Choose and install an operating system on a computer.
- Understand what the Internet is, how it works, and the impact it has in the modern world.
- Learn how applications are created and how they work under the hood of a computer.
- Utilize common problem solving methodologies and soft skills in an Information Technology setting.

Course 2

The Bits and Bytes of Computer Networking

This course is designed to provide a full overview of computer networking. We cover everything from the fundamentals of modern networking technologies and protocols to an overview of the cloud to practical applications and network troubleshooting.

Learning Objectives:

- Describe computer networks in terms of a five-layer model.
- Understand all of the standard protocols involved with TCP/IP communications.
- Grasp powerful network troubleshooting tools and techniques learn network services like DNS and DHCP that help make computer networks run.
- Understand cloud computing, everything as a service, and cloud storage.

Course 3

Operating Systems and You: Becoming a Power User

In this course — through a combination of video lectures, demonstrations, and hands-on practice — we cover the main components of an operating system and how to perform critical tasks like managing software and users, and configuring hardware.

Learning Objectives:

- Navigate the Windows and Linux file systems using a graphical user interface and command line interpreter.
- Set up users, groups, and permissions for account access.
- Install, configure, and remove software on the Windows and Linux operating systems.
- Configure disk partitions and filesystems.
- Understand how system processes work and how to manage them.
- Work with system logs and remote connection tools.
- Utilize operating system knowledge to troubleshoot common issues.

Phase 2

After Launchpad, apprentices join their teams at Google and enter into Phase 2 of related technical instruction. During Phase 2, apprentices complete the remaining courses of their Google Career Certificate and begin applying their newly acquired skills on the job. They also continue to participate in regular instructor-led sessions, including:

- **Project Debriefs & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course. The purpose is to allow apprentices and instructors the opportunity to troubleshoot any areas of misunderstanding, build community, and reflect on and extend learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Instructor office hours** to help guide their work.

Course 4

System Administration and IT Infrastructure Services

This course transitions from working on a single computer to an entire fleet. In this course, we cover the infrastructure services that keep all organizations, big and small, up and running. We deep dive on cloud to understand everything from typical cloud infrastructure setups to how to manage cloud resources. We also cover how to manage and configure servers and how to use industry tools to manage computers, user information, and user productivity. Finally, we cover how to recover your organization's IT infrastructure in the event of a disaster.

Learning Objectives:

- Utilize best practices for choosing hardware, vendors, and services for your organization.
- Understand how the most common infrastructure services work, and how to manage infrastructure servers.
- Understand how to use the cloud for your organization.
- Manage an organization's computers and users using the directory services, Active Directory, and OpenLDAP.
- Choose and manage the tools that your organization will use.
- Backup their organization's data and know how to recover their IT infrastructure in the case of a disaster.
- Utilize systems administration knowledge to plan and improve processes for IT environments.

Course 5

IT Security: Defense Against the Digital Dark Arts

This course covers a wide variety of IT security concepts, tools, and best practices. It introduces threats and attacks and the many ways they can show up. We provide some background of encryption algorithms and how they're used to safeguard data. Then, we dive into the three As of information security: authentication, authorization, and accounting. We also cover network security solutions, ranging from firewalls to Wifi encryption options. The course is rounded out by putting all these elements together into a multi-layered, in-depth security architecture, followed by recommendations on how to integrate a culture of security into an organization or team.

Learning Objectives:

- How various encryption algorithms and techniques work as well as their benefits and limitations.
- Various authentication systems and types.
- the difference between authentication and authorization.
- How to evaluate potential risks and recommend ways to reduce risk.
- Best practices for securing a network.
- How to help others to grasp security concepts and protect themselves.

Project Management

RAPIDS Code: **3019** O*NET Code: **13-1082.00**

Estimated Program Length: **18 months**

Apprenticeship Type: **Competency-Based**

Registered Apprenticeship Standards

Project Management Work Process Schedule: Job Functions & Competencies

Job Function 1

Plans and initiates projects

1. Aligns project goals with overall business objectives
2. Considers and proposes multiple options when planning project requirements with stakeholders
3. Selects and uses appropriate project management methodologies (e.g., Agile, Waterfall, Kanban) based on project needs
4. With support, develops effective processes, workflows, and schedules for efficient delivery of products and services
5. Develops and updates project plans, including project charter, schedule, lifecycle, and resources
6. With support, proposes, reviews, and approves modifications to project plans with input from team members and/or clients
7. Analyzes resources and timeframe to estimate project time and effort
8. Identifies risks and proactively develops and implements mitigations as needed
9. Applies business/domain knowledge to inform project decisions

Job Function 2

Manages project execution

1. Assigns duties, tasks, and responsibilities to appropriate project personnel
2. Promotes collaboration and knowledge sharing using organizational best practices
3. Leverages appropriate project management software and tools (including AI tools), technology, and expertise to strengthen team coordination and accelerate project progress
4. Delivers efficient results while managing multiple tasks throughout the project lifecycle
5. Monitors and reports on project milestones, risks, and deliverables for on-time delivery and resource requirements
6. Identifies and removes project-related roadblocks using creative problem solving and troubleshooting
7. Applies continuous improvement methods to evaluate workflows and processes, including identifying opportunities for leveraging AI and automation

Job Function 3

Communicates with internal and external teams, stakeholders, and customers

1. Communicates with stakeholders to determine project requirements, objectives, and success criteria
2. Communicates goals, impact, and business value to stakeholders
3. Provides relevant and effective project updates throughout the project lifecycle to a variety of stakeholders using both oral and written communication skills and techniques

4. Manages, records, and reports costs incurred to identify budget or resource issues
5. Presents completed work to internal and external stakeholders
6. Provides clear written and oral communication to stakeholders regarding risks, risk mitigations, limitations, and other sensitive issues
7. Works with stakeholders to evaluate and drive business requirements
8. Presents insights from data as compelling narratives using effective analysis, visualization, and storytelling techniques, including the ability to incorporate AI-generated insights alongside traditional data analysis

Job Function 4

Produces clear and effective documentation of the project

1. Continuously monitors project deliverables to ensure they meet the standards named in the project plan
2. Prepares a project issues tracker and documents history of the project, the issues that occurred, and the steps taken to resolve them
3. Develops documentation for closing a project (e.g., retrospectives, closeout reports, project processes)

Job Function DS

Demonstrates use of durable skills in the workplace

1. Communicates effectively and thoughtfully in both written and verbal formats
2. Gives, receives, and acts upon constructive feedback
3. Demonstrates effective and proactive problem solving
4. Acts as a reliable teammate and peer when working collaboratively
5. Utilizes time management strategies and effectively prioritizes tasks to meet deadlines
6. Takes accountability and ownership of assigned work and its outcomes
7. Actively pursues opportunities for learning and development to adapt to new challenges and evolving technologies

Job Function AI

Practices effective and responsible AI use in the workplace

1. Evaluates the strengths, risks, and limitations (e.g., outdated data) of AI models and tools to determine their appropriateness for specific tasks
2. Uses AI tools to enhance productivity and creativity, and to support problem solving
3. Creates and refines AI inputs (e.g., prompts) using clear context and constraints to maximize the relevance and accuracy of outputs
4. Critically reviews AI-generated outputs for accuracy, bias, and completeness, validating against trusted sources
5. Protects personal, proprietary, and client data by adhering to organizational AI policies and using approved tools
6. Assumes full accountability for final decisions and deliverables, ensuring proper disclosure and citation for AI-generated content
7. Contributes to the advancement of responsible AI by sharing successful strategies and lessons learned, documenting risks and reporting errors

Project Management Related Technical Instruction (RTI) Outline

Google's company-wide required trainings for engagement
Apprentices will complete all company-required trainings.

Google's Orientation

In the ten days of apprentice orientation, apprentices will be fully immersed in self-study and instructor-led sessions designed to help apprentices have a strong start in the program. Topics addressed include, but are not limited to: durable skills; corporate norms and ways of working; Google Workspace tools; giving and receiving feedback; time management; DOL competencies and requirements, etc. Apprentices will also complete the Google AI Professional Certificate to introduce them to the role AI can play in improving productivity, efficiency and creativity in the workplace.

Launchpad

The next phase of the program is a six-week virtual learning intensive we call Launchpad. During this time, apprentices complete the first three courses of the Google Project Management Career Certificate and participate in regular instructor-led sessions taught by our training partner. This frontloading of RTI provides foundational exposure to the skills and knowledge they'll encounter once they join their teams. Launchpad will consist of:

- **Project Debrief & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course to allow apprentices and instructors the opportunity to troubleshoot, build community, and reflect on learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Learning Pods:** At the end of every day, apprentices will meet in a small group to build community, review learnings and work together to answer questions.
- **Instructor office hours** to help guide their work.
- **Professional Development workshops** (1x week) to prepare apprentices for entry into Google on topics like time management, growth mindset, and communication.

Course 1

Foundations of Project Management

In the first course of the Project Management Career Certificate, we cover foundational project management terminology and learners gain a deeper understanding of the role and responsibilities of a project manager. We also introduce the kinds of jobs learners might pursue after completing this program.

Learning Objectives:

- Define project management and describe what constitutes a project.
- Explore project management roles and responsibilities across a variety of industries.
- Detail the core skills that help a project manager be successful.
- Describe the life cycle of a project and explain the significance of each phase.
- Compare different program management methodologies and approaches and determine which is most effective for a given project.
- Define organizational structure and culture and explain how they impact project management.
- Define change management and describe the role of the project manager in the process.
- Explore use-cases for generative AI in project management.

Course 2

Project Initiation: Starting a Successful Project

This course will demonstrate how to set a project up for success in the first phase of the project life cycle: the project initiation phase. In exploring the key components of this phase, we cover how to define and manage project goals, deliverables, scope, and success criteria. We also teach how to use tools and templates like stakeholder analysis grids and project charters to help set project expectations and communicate roles and responsibilities.

Learning Objectives:

- Understand the significance of the project initiation phase of the project life cycle.
- Describe the key components of the project initiation phase.
- Determine a project's benefits and costs.
- Define and create measurable project goals and deliverables.
- Define project scope and differentiate among tasks that are in-scope and out-of-scope.
- Understand how to manage scope creep to avoid impacting project goals.
- Define and measure a project's success criteria.
- Complete a stakeholder analysis and explain its significance.
- Utilize RACI charts to define and communicate project team member responsibilities.
- Understand the key components of project charters and develop a project charter for project initiation.
- Evaluate various project management tools to meet project needs, including generative AI.

Course 3

Project Planning: Putting It All Together

In this course, we explore how to map out a project in the second phase of the project life cycle: the project planning phase. We examine the key components of a project plan, how to make accurate time estimates, and how to set milestones. Next, we teach how to build and manage a budget and how the procurement processes work. Then, we discover tools that can help identify and manage different types of risk and how to use a risk management plan to communicate and resolve risks. Finally, we explore how to draft and manage a communication plan and how to organize project documentation.

Learning Objectives:

- Describe the components of the project planning phase and their significance.
- Explain why milestones are important and how to set them.
- Make accurate time estimates and describe techniques for acquiring them from team members.
- Identify tools and best practices to build a project plan and risk management plan.
- Describe how to estimate, track, and maintain a budget.
- Explain the procurement process and identify key procurement documentation.
- Draft a communication plan and explain how to manage it.
- Explain why a project plan is necessary and what components it contains.

Phase 2

After Launchpad, apprentices join their teams at Google and enter into Phase 2 of related technical instruction. During Phase 2, apprentices complete the remaining courses of their Google Career Certificate and begin applying their newly acquired skills on the job at Google. They also continue to participate in regular instructor-led sessions taught by our training partner, including:

- **Project Debriefs & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course. The purpose is to allow apprentices and instructors the opportunity to troubleshoot any areas of misunderstanding, build community, and reflect on and extend learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Instructor office hours** to help guide their work.

Course 4

Project Execution: Running the Project

This course delves into the execution and closing phases of the project life cycle. We cover project tracking and how to effectively manage and communicate changes, dependencies, and risks. We explore how to measure customer satisfaction and implement process improvement techniques. Next, we teach data prioritization, how it can inform decision-making, and how to effectively present findings. We also cover team development and explore tools that help facilitate team communication, organize and facilitate meetings, and effectively communicate project updates. Finally, we cover the project closing process and how to create and share closing project documentation.

Learning Objectives:

- Identify what to track in a project and compare varying methods.
- Discuss how to effectively manage and communicate changes, dependencies, and risks.
- Explain key quality management concepts of quality standards, quality planning, quality assurance, and quality control.
- Create continuous improvement processes and describe how to measure customer satisfaction.
- Explain the purpose of and conduct a retrospective.
- Demonstrate how to prioritize and analyze data and communicate a project's data-informed story.
- Identify tools that provide effective team communication and explore best practices.
- Describe the steps of the closing process for stakeholders, the project team, and project managers.
- Explore best practices for leveraging generative AI tools for communication.

Course 5

Agile Project Management

This course explores the history, approach, and philosophy of Agile project management, including the Scrum framework. We cover how to differentiate and blend Agile and other project management approaches. We explore Scrum pillars and values and compare essential Scrum team roles. We address how to build, manage, and refine a product backlog, implement Agile's value-driven delivery strategies, and define a value roadmap. We also teach strategies to effectively organize the five important Scrum events for a Scrum team, how to introduce an Agile or Scrum approach to an organization, and how to coach an Agile team. Finally, we cover how to search for and land opportunities in Agile roles.

Learning Objectives:

- Explain the Agile project management approach and philosophy, including values and principles.
- Explain the pillars of Scrum and how they support Scrum values.
- Identify and compare the essential roles in a Scrum team and what makes them effective.
- Build and manage a Product Backlog and perform Backlog Refinement.
- Describe the five important Scrum events and how to set up each event for a Scrum team.
- Implement Agile's value-driven delivery strategies and define a value roadmap.
- Explain how to coach an Agile team and overcome challenges.
- Conduct a job search for an Agile role and learn how to succeed in an interview.

Course 6

Applying Project Management in the Real World

In this course, learners "observe" a project manager in a real-world scenario and complete dozens of hands-on activities. They develop a portfolio of project management artifacts that will demonstrate the skills they have learned throughout the entire program, such as their ability to manage stakeholders and teams, organize plans, and communicate project details. These artifacts exhibit their career readiness when applying for jobs in the field. To further prepare for interviewing for project management jobs, learners reflect on past projects, develop an "elevator pitch," and practice common interview questions.

Learning Objectives:

- Analyze project documents to identify project requirements and evaluate stakeholders.
- Complete a project charter and use it to align project scope and goals among stakeholders.
- Identify tasks and milestones and document and prioritize them in a project plan.
- Define quality management standards and explore how to effectively share qualitative data.
- Demonstrate their project's impact through effective reporting.

UX Design

RAPIDS Code: **2098** O*NET Code: **15-1255.00**

Estimated Program Length: **18 months**

Apprenticeship Type: **Competency-Based**

Registered Apprenticeship Standards

User Experience Designer Work Process Schedule: Job Functions & Competencies

Job Function 1

Performs generative research activities to determine scope of project

1. Assists in conducting competitive and comparative analysis of in-market solutions
2. Utilizes various data collection methods (i.e. surveys, focus groups, interviews) as well as AI-powered tools, to identify user preferences, needs, context of use, potential opportunities for improvement, and pain points
3. Meets with key stakeholders to identify business requirements
4. Seeks to understand user behaviors in the context of business goals, utilizing AI tools when appropriate

Job Function 2

Synthesizes insights regarding user needs and behaviors to define key design goals

1. Reviews existing research to identify patterns in behavior and strategic opportunities
2. Uses human-centered design methods (personas, user journeys) and AI-powered tools to synthesize insights
3. Contributes to design space conversations by demonstrating a deep understanding of user needs
4. Reviews user data and performance metrics, leveraging AI tools to identify patterns

Job Function 3

Applies user-centered design methodologies for ideation and solution development

1. Assists in facilitating collaborative workshops to brainstorm potential solutions
2. Assists in storyboarding and concept development, including user flows
3. Balances trade-offs between user and business needs in the solution-creating process

Job Function 4

Iterates and prototypes user-centered solutions to refine and enhance designs

1. Drafts outlines of key interactions based on design plan
2. Creates a variety of low fidelity and high fidelity and interactive prototypes – physical, digital, or hand drawn – for concept development and evaluation, utilizing AI-powered design tools when appropriate
3. Ensures all prototypes follow best practices and utilize design systems for consistency
4. Collaborates with cross-functional teams to continuously improve solutions
5. Maintains awareness of users' perspectives and incorporates needs into prototypes
6. Follows company design system in the development of high-fidelity prototypes

Job Function 5

Collaborates with cross-functional teams to develop functional products, interactions, or experiences

1. Collaborates with developers and product managers to inform product development

2. Uses appropriate digital UX/UI design software, including AI-powered tools, to assist developers
3. Utilizes design systems to support product development

Job Function 6
Conducts evaluative research to test and improve design solutions

1. Prepares drafts of discussion guides to guide conversations around solutions
2. Assists in designing and running usability evaluations on prototypes to solicit user feedback
3. Identifies design flaws and proposes solutions to mitigate them
4. Collaborates across teams to synthesize findings and iterate versions of the design

Job Function 7
Upholds standards of ethical practice in UX Design

1. Respects user privacy and prioritizes informed consent in data collection
2. Ensures all products are accessible by following inclusive design principles (e.g. WCAG 2.1)
3. Follows best practices for UX design, avoiding deceptive practices
4. Seeks out diverse voices and experiences throughout the design process

Job Function 8
Develops a User Experience Designer portfolio

1. Develops a portfolio showcasing key skills pertinent to UX design

Job Function DS
Demonstrates use of durable skills in the workplace

1. Communicates effectively and thoughtfully in both written and verbal formats
2. Gives, receives and acts upon constructive feedback
3. Demonstrates effective and proactive problem solving
4. Acts as a reliable teammate and peer when working collaboratively
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Launchpad

The next phase of the program is a six-week virtual learning intensive we call Launchpad. During this time, apprentices complete the first four courses of the Google UX Design Career Certificate and participate in regular instructor-led sessions taught by our training partner. This frontloading of RTI provides foundational exposure to the skills and knowledge they'll encounter once they join their teams. Launchpad will consist of:

- **Project Debrief & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
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- **Professional Development workshops** (1x week) to prepare apprentices for entry into Google on topics like time management, growth mindset, and communication.

Course 1

Foundations of User Experience (UX) Design

Foundations of User Experience (UX) Design is the first course of the UX Design Career Certificate; it will equip learners with the skills needed to apply to entry-level jobs in user experience design. This course will introduce the field of UX design, explore job opportunities and career paths within the field, review common job responsibilities of entry-level UX designers, and explore common research methods used in UX design.

Learning Objectives:

- Define the field of UX and explain why it's important for consumers and businesses.
- Understand foundational concepts in UX design, such as user-centered design, the design thinking framework, accessibility, and equity-focused design.
- Identify the factors that contribute to great user experience design.
- Review common job responsibilities of entry-level UX designers and the teams that they work with.
- Explore job opportunities and career paths within the field of user experience.
- Explain why design sprints are an important and useful part of a UX designer's work.
- Describe common UX research methods.
- Identify and account for biases in UX research.

Course 2

Start the UX Design Process: Empathize, Define, Ideate

In this course, learners will complete the first phases of the design thinking framework for a project that they'll be able to include in their UX design portfolio. Learners will begin to empathize with users and understand their pain points, define user needs with problem statements, and come up with potential solutions to those user problems.

Learning Objectives:

- Describe common UX research methods.
- Empathize with users to understand their needs and pain points.
- Create empathy maps, personas, user stories, and user journey maps to understand user needs.
- Develop problem statements to define user needs.
- Generate ideas for possible solutions to user problems.
- Conduct competitive audits.
- Identify and account for biases in UX research.
- Start designing a mobile app to include in a UX design portfolio.

Course 3

Build Wireframes and Low-Fidelity Prototypes

In this course, learners will continue to design a mobile app for their UX design portfolio. They will practice ideating by creating storyboards and getting familiar with the basics of drawing. Then, they will create paper wireframes and digital wireframes using the design tool Figma. Learners will also create a paper prototype and a digital low-fidelity prototype in Figma.

Learning Objectives:

- Develop a goal statement.
- Create two types of storyboards: big-picture and close-up.
- Apply the basics of drawing.
- Apply the principles of information architecture to organize a mobile app.
- Create paper and digital wireframes for a mobile app design.
- Build a paper prototype to add interactivity to designs.
- Understand the difference between low-fidelity and high-fidelity design.
- Design a low-fidelity prototype in Figma.
- Recognize implicit bias and deceptive patterns in design.

Course 4

Conduct UX Research and Test Early Concepts

In this course, learners will continue to design a mobile app that they will eventually include in a UX design portfolio. They will explore how to plan and conduct a usability study to gather feedback about designs. Then, they will modify their low-fidelity designs based on insights from their research.

Learning Objectives:

- Plan a UX research study, including the project background, research goals, research questions, key performance indicators, methodology, participants, and script.
- Explain the importance of respecting privacy and user data.
- Conduct a moderated and unmoderated usability study.
- Create affinity diagrams to group and analyze data.
- Synthesize observations from research and come up with insights.
- Use their newly gained persuasive presentation skills to share research insights.
- Modify low-fidelity designs based on research insights.
- Continue designing a mobile app to include in a professional portfolio.

Phase 2

After Launchpad, apprentices join their teams at Google and enter into Phase 2 of related technical instruction. During Phase 2, apprentices complete the remaining courses of their Google Career Certificate and begin applying their newly acquired skills on the job at Google. They also continue to participate in regular instructor-led sessions taught by our training partner, including:

- **Project Debriefs & Course Kickoffs:** Held on the first day of each course, the kickoff builds community, and provides context and tips for the coursework ahead.
- **Midpoint and Endpoint Check-ins:** These sessions are scheduled at the approximate midpoint and endpoint of each course. The purpose is to allow apprentices and instructors the opportunity to troubleshoot any areas of misunderstanding, build community, and reflect on and extend learning.
- **Discussion Days:** During these sessions, apprentices and instructors participate in group discussions about the content learned so far in a course.
- **Project Days:** These sessions are held once per course at the end of the course; apprentices collaborate in small groups on hands-on application projects.
- **Instructor office hours** to help guide their work.

Course 5

Create High-Fidelity Designs and Prototypes in Figma

In this course, learners will follow step-by-step tutorials to learn how to create high-fidelity designs in Figma, a popular design tool. Then, learners will turn those designs into an interactive prototype that works like a finished product. They will conduct research to collect feedback about their designs and make improvements. Finally, they will learn how to share their designs with development teams and highlight their work in a UX design portfolio.

Learning Objectives:

- Build mockups and high-fidelity prototypes in Figma.
- Define and apply common visual design elements and principles.
- Demonstrate how design systems can be used to organize, standardize, and enhance designs.
- Hand off finished design projects to engineering teams.
- Complete mobile app designs to include in a UX design portfolio.

Course 6

Build Dynamic User Interfaces (UI) for Websites

In this course, learners will design a responsive website to include in their UX design portfolio. They will apply the design thinking framework by empathizing with the user, defining user needs, ideating on the research they've gathered, and coming up with ideas for design solutions to create a website prototype.

Learning Objectives:

- Apply each step of the UX design process (empathize, define, ideate, prototype, test) to create a responsive website.
- Develop designs in Figma.
- Plan information architecture and create sitemaps for website designs.
- Identify the differences between dedicated mobile apps and responsive web apps.
- Apply common layouts for web pages.
- Plan and conduct a usability study to gather feedback about designs.

- Understand the role of design critique sessions and feedback while iterating on designs.
- Iterate on designs based on research insights.
- Work with design systems in Figma.
- Add a new design project to a UX design portfolio.

Course 7

Design a User Experience for Social Good & Prepare for Jobs

In the final course of this program, learners will design a dedicated mobile app and a responsive website focused on social good. Learners will showcase all that they have learned during the certificate program to complete the design thinking framework from beginning to end. This course will also prepare learners to land their first job as a UX designer. They will learn how to interview for entry-level UX design positions, get tips from Googlers based on their own interview experiences and their unique perspectives as hiring managers, and polish the UX design portfolio they've been building throughout the program so it's ready for job applications.

Learning Objectives:

- Apply each step of the UX design process (empathize, define, ideate, prototype, test) to create designs focused on social good.
- Identify the differences between dedicated mobile apps and responsive web apps.
- Understand progressive enhancement and graceful degradation approaches for designing across devices.
- Build wireframes, mockups, and low-and high-fidelity prototypes.
- Add a new design project to your professional UX portfolio.
- Create your portfolio of design work for job applications.
- Join and participate in online UX communities.
- Interview for an entry-level UX design job.
- Determine if freelance design work is a good career fit for you.