PROJECT DESCRIPTION

As the project manager for the Cable Planning team, you will manage the creation of the cable plan for the new building that will be built, with construction set to begin in six weeks.

The deliverables for the entire Cable Plan will consist of an Executive Summary, a PowerPoint Presentation and an Excel Spreadsheet. You will develop different parts of each of these in three parts. The final organization should contain these elements:

The Executive Summary:

- Project Introduction
- Standards and Codes
  - Cable Standards and Codes
  - Building Standards and Codes
- Project Materials
- Copper Cable, Tools, and Test Equipment
- Fiber-Optic Cable, Tools, and Test Equipment
- Fiber-Optic Design Considerations
- Basement Server Complex Design
- First Floor Design
- Security and Safety
- Component Cost, Picture, and source

The Excel Spreadsheet:

- Component Names
- Component Descriptions
- Component Costs
- Total Project Costs

The PowerPoint Presentation:

- Introductory Slide
- Component Slides with Component Name, Quantity Needed, Description, Price, Picture, and Reference (where to buy the component)
- Description of the Basement Telecommunications and Network Server Space
- Network Equipment Required for the Server Farm
- Cable Plant Design for the Basement

- Standard Floor Design for Computers and Network Equipment
- Cable Plant for the Standard Floor

Course Objectives Tested:

1. Distinguish between bandwidth, frequency, and data rate in a data network
2. Explain the importance of codes, standards, and specifications.
3. Compare and contrast network topologies
4. Describe the characteristics of different copper cables
5. Explain the purpose of network tools
6. Compare and contrast fiber-optic and copper transmission
7. Differentiate between twisted-pair cable connectors, coaxial cable connectors, and fiber-optic cable connectors
8. Construct a network based on specifications using repeaters, hubs, bridges, switches, servers, and routers
9. Demonstrate how to test copper and fiber-optic networks
10. Explain how fiber-optic transmission utilizes the basic principles of light for transmission
11. Evaluate the optical fiber characteristics that affect data rates, including dispersion, attenuation, and bending
12. Compare different fiber-optic light sources
13. Explain the passive components used in fiber-optic networking, including couplers, optical switches, optical attenuators, optical isolators, optical amplifiers, and optical filters
14. Explain how to install, test and repair fiber-optic cables and networks.

PROJECT SUBMISSION PLAN

Project Part	Description/Requirements of Project Part	Evaluation Criteria
Part 1	**Project Part 1: Design a Cable Network for a Large Company** Your first task in creating the Cabling Plan is to develop an Executive Summary that will contain the Project Introduction and Infrastructure Cable Specifications and Standards. Your manager gives you the overall project plan that includes: • A detailed description of the new building. • The total number of computers for all of the employees of the company. • The server and network topology hardware that is required to put the system together. You can access documents for the project plan through the Unit 2 Study Lesson. This week, you will develop the template for the Executive Summary format (include headings for all sections.) You will also fill in the content for the following sections and subsections in the Executive Summary: ○ Project Introduction ○ Standards and Codes ▪ Cable Standards and Codes ▪ Building Standards and Codes Create the template for the Spreadsheet and the	Your instructor will use the following points for evaluating your performance in this assessment: • Did you create an Executive Summary Document with the sections indicated completed? • Did you use a minimum of 2 pages: single-spaced? • Did you include all pertinent standards and codes for your project? • Did you create the headings for all sections in the Executive Summary? • Did you create a template for the spreadsheet? • Did you create a template for the

Project Part	Description/Requirements of Project Part	Evaluation Criteria

	PowerPoint presentation. Complete the Introductory slide for the PowerPoint Presentation
	
	Submission Requirements:
	• Microsoft Word Document
	• Size: 12-pt.
	• Font: Times New Roman
	• Length: Minimum of 2 pages
	• Line Spacing: Single-Spaced
	• Executive Summary containing the following Sections:
	  ○ Project Introduction
	  ○ Standards and Codes
	  ▪ Cable Standards and Codes
	  ▪ Building Standards and Codes
	Due: Week 2
	Grading Weight: 5%
		PowerPoint presentation?
		• Did you create the first introductory slide for the PowerPoint presentation?
		• Did you use proper formatting, grammar, and spelling?

Part 2	**Project Part 2 Cable Infrastructure and Procedures** **Submission Requirements:** Using the Project Plan provided by your supervisor (accessed from the Unit 2 Study Lesson), the Executive Summary sections that were created for the Part 1 of the Project, and templates you created in Part 1 of the Project, you will design the cable infrastructure for the basement where the Telecommunications equipment, Network equipment, and cable reside. Parameters for the design such as the size of the building, Computer and Servers, Cable, and Network Equipment requirements are provided in the Overall Project Plan provided by your supervisor. You will also designate the cable Equipment, and fiber segments for installation in the basement where the Telecommunications equipment, the Network equipment	Your instructor will use the following points for evaluating your performance in this assessment: • Did you add to the Executive Summary Document? • Did you describe the components required for the Installation of the basement cable structure and the

Project Part	Description/Requirements of Project Part	Evaluation Criteria
	and cable reside and one of the four upper floors in the building. The basic designs of the upper floors (all have the same design) are based on the size of the building, the number of Computer Workstations, Cable, and Network Equipment requirements. The parameters are provided by the Overall Project Plan to assist you in completing the tasks. The first task will be to define the infrastructure and network component requirements within an Excel Spreadsheet. Research each device and cable and fill in information including the description, price, and source, in the spreadsheet. Define the Power Budget provided by the fiber-optic cable and determine if the backbone design is adequate to keep within the Power Budget. Research each type of Fiber-Optic Cable to determine the best type to use for the company's backbone. Continue the Executive Summary, Spreadsheet, and presentation and add the following Topics/Items to the Project Materials: o Fiber-Optic Design Considerations o Basement Server Complex Design o Standard Floor Design o Fiber-Optic Characteristics: o Bandwidth o Attenuation o Electromagnetic Immunity o Size and Weight o Security and Safety o Link Performance Analysis o Cable Transmission Performance	Standard Floor cable structure? • Did you create a Spreadsheet with all components, tools, and testing equipment with required information? • Did you create a PowerPoint Presentation with all components, cabling, tools, and testing equipment? • Did you use proper formatting, grammar, and spelling?

Project Part	Description/Requirements of Project Part	Evaluation Criteria
	○ Splice and Connector Performance ○ Power Budget • In the Cost Analysis spreadsheet, fill in the following information: ○ Components Needed ○ Quantity of Additional Components ○ Description of Additional Components ○ Cost of Additional Components • In the PowerPoint Presentation, fill in the slides for: ○ Component Slides with Component Name, Quantity Needed, Description, Price, Picture, and Reference (where to buy the component) ○ Description of the Basement Telecommunications and Network Server Space ○ Network Equipment Required for the Server Farm ○ Cable Plant Design for the Basement ○ Standard Floor Design for Computers and Network Equipment ○ Cable Plant for the Standard Floor **Submission Requirements:** • Microsoft Word Document • Microsoft Word Document: Continue Executive Summary from Part 1; • Size: 12-pt; • Font: Times New Roman • Length: 4-6 pages (Added to previous	

Project Part	Description/Requirements of Project Part	Evaluation Criteria

	Work)
	• Microsoft Excel Spreadsheet
	  • 1 worksheet: Continue Spreadsheet from Part 1.
	• PowerPoint Presentation
	  • Introductory Slide: From Executive Summary.
	  • Component Slides with Component Name, Description, Price, Picture, and Source of Purchase
	  • 5-6 additional slides with information as described above
	Due: Week 4
	Grading Weight: 5%	

Part 3	**Project Part 3: Completing the Cable Plant and Network Component Design for the New Building** This week the you will finalize the project including formatting the entire project document that includes the Executive Summary, an Excel spreadsheet with the component description, pricing, and source, and a PowerPoint presentation that contains the cable Infrastructure design for the basement and the Standard Floor, a slide for each component of the network design with a description, price and source, and a picture of the Excel Spreadsheet with the component list and total cost of the project. • Complete and Edit for format and grammar, the Executive Summary Document began in Part 1 and continued in Part 2 • Complete a Cost Analysis which will contain the following:	Your instructor will use the following points for evaluating your performance in this assessment: • Did you edit and submit a professional project? • Did you submit an Executive Summary detailing the design of the building, Server Farm Complex and at least one standard floor? • Did you submit

Project Part	Description/Requirements of Project Part	Evaluation Criteria
	○ Quantity of Additional Components ○ Description of Additional Components ○ Cost of Additional Components ○ Total Cost of the project • Complete the PowerPoint Presentation ○ Edit the Design the Basement Telecommunications and Network Server Space in the basement ○ Edit the Design of the Network Equipment required for the Server Farm ○ Edit the Design the Cable Plant for the basement ○ Edit the Design the Cable Plant for standard floor • Edit all deliverables for: ○ Building Design ○ Basement Server Complex Design ○ Standard Floor Design ○ Component cost, picture, and source **Submission Requirements:** • Submit your completed Microsoft Work Executive Summary. • Submit your completed Excel Spreadsheet. • Submit your completed PowerPoint Presentation **Due:** Week 5	an Excel spreadsheet detailing component selection, price and source? • Did you submit a PowerPoint presentation describing the design and component selection?

Project Part	Description/Requirements of Project Part	Evaluation Criteria
	Grading Weight: 5%	

(End of Project Description)