# IoT (Internet of Things) Course No. 10006/60006 Credit: 1.0

|  |  |  |  |
| --- | --- | --- | --- |
| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes:

Course Description: **Introductory Level:** All things internet is an introductory course designed to provide students with a fundamental understanding of the principles, technologies, and systems used in modern telecommunications. The course aims to explore basic concepts to the history of the internet, communication fundamentals, and emerging technologies future trends.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Analyze Careers in the Telecommunications Industry

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Describe careers in Telecommunications industry. |  |
| 1.2 | Classify careers from entry level to professional level. |  |
| 1.3 | Explore entrepreneurship opportunities in the Telecommunications industry. |  |
| 1.4 | Research, analyze, and present technology trends impacting the Telecommunications industry. |  |
| 1.5 | Research and present information on a Telecommunications career to include roles and responsibilities, employment opportunities, and requirements for education and training. |  |

## Benchmark 2: Demonstrate knowledge of industry tools and equipment

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify and select the appropriate tool for the assignment. |  |
| 2.2 | Practice care and maintenance of tools and equipment. |  |
| 2.3 | Demonstrate proper and safe use of tools and equipment. |  |

## Benchmark 3: Identify components of network systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Define important Internet, including hardware and software components. |  |
| 3.2 | Identify and configure user customization features in a web browser, including preferences, caching, and cookies. |  |
| 3.3 | Recognized essential database concepts. |  |
| 3.4 | Define and use additional networking and Internet services. |  |

## Benchmark 4: Understanding the history of the internet and the different ways messages are transmitted

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Outline the history of the phone, radio, and internet. |  |
| 4.2 | Recognize common devices used in networks, such as routers, modems, switches, and their basic functions. |  |
| 4.3 | Analyze various network technologies such as wired (e.g. Ethernet, DSL) and wireless (e.g. cellular, Wi-Fi) systems, understanding the strengths and weaknesses. |  |

## Benchmark 5: Develop a familiarity of essential telecommunication networking systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Define the 3 networks: Intranet, Internet, and Extranet. |  |
| 5.2 | Explain how the “internet” and “extranet” networks allow for different communication and data exchange.  |  |
| 5.3 | Explore protocols like TCP/IP, UDH, HTTP, and other telecommunication systems. |  |
| 5.4 | Create a small network, connecting devices to share files or play games and understand how information is shared between them. |  |
| 5.5 | Explain basic concepts of network security, such as the importance of passwords, firewalls, and safe online behavior. |  |

## Benchmark 6: Understanding materials and devices used in the telecommunication installation processes

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Recognize common naming of devices used in telecommunication installation, such as routers, switches, modems, antennas, and cables. |  |
| 6.2 | Describe the basic functions of how devices, including how they transmit, receive, amplify, or route signals within a network.  |  |
| 6.3 | Identify how devices are connected to different networks, Bluetooth, Wi-Fi, ethernet, point to point wireless (i.e. connecting building to building without cabling option). |  |
| 6.4 | Define types of cables: RJ 11 Connectors, Two Pair Wire, Coaxial Connectors, Coaxial Cable, RJ 45, and Ethernet, Fiber, and Fiber connectors.  |  |
| 6.5 | Identify speed capabilities of various connection types and applications. |  |
| 6.6 | Demonstrate best practices when handling telecommunications materials and equipment. |  |

## Benchmark 7: Demonstrate safety protocols and standards for telecommunications

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Identify program hardware, tools, and testers consumables and demonstrate best practices when handling cables, tools, and equipment. |  |
| 7.2 | Recognize and utilize safety gear and precautions related to electrical equipment. |  |
| 7.3 | Describe and demonstrate tool safety for both hand tools and power tools per OSHA standards. |  |
| 7.4 | Describe and demonstrate safe use of ladders and fall protection. |  |

## Benchmark 8: Engage in basic telecommunication troubleshooting protocols

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Demonstrate simple troubleshooting techniques, such as checking connections. |  |
| 8.2 | Resolve common connectivity problems, such as identifying network outages, signal interference, or device connectivity. |  |
| 8.3 | Understand methods to enhance signal quality such as adjusting antenna placement, configure settings, or identifying and resolving signal degradation. |  |
| 8.4 | Identify and rectify issues related to cables and connections, such as cable crimping, identifying faulty connections, or replacing damaged cables. |  |

## Benchmark 9: explore emerging technologies in telecommunications

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Recognize and name emerging technologies, including 5G, Internet of Things (IoT) devices, advancement in satellite communication, fiber options. |  |
| 9.2 | Explain the potential impacts of emerging technologies on communication systems, businesses, society, and everyday life. |  |
| 9.3 | Analyze the advantages and limitation of emerging technologies to current and existing industry applications. |  |
| 9.4 | Discuss how potential future developments and innovations, such as the integration of AI, impacts telecommunications and society. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

pathwayshelpdesk@ksde.org



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.