Creating a 16-week course with two hands-on lab practicals per week for beginners in computer networks sounds like a great way to build a solid foundation. Here's a structured outline to help guide the development of the course:

Week 1-2: Introduction to Computer Networks

- **Lab 1:** Basic Networking Concepts
    - Overview of computer networks, protocols, and topologies.
    - Hands-on activity: Identify different types of network topologies (star, bus, ring) using network simulation tools.
- **Lab 2:** Understanding Network Devices
    - Introduction to routers, switches, hubs, and modems.
    - Hands-on activity: Configure basic settings on a router and switch using network simulation tools.

Week 3-4: IP Addressing and Subnetting

- **Lab 3:** IPv4 Addressing
    - Concepts of IP addresses, subnet masks, and default gateways.
    - Hands-on activity: Assign IP addresses to devices and configure subnet masks.
- **Lab 4:** Subnetting Practice
    - Basics of subnetting and calculating subnet addresses.
    - Hands-on activity: Create subnets for a given network range and assign IP addresses.

Week 5-6: Networking Protocols and Models

- **Lab 5:** OSI Model Layers
    - Overview of OSI model and its layers.
    - Hands-on activity: Map common network protocols to the OSI layers.
- **Lab 6:** TCP/IP Model and Packet Analysis
    - Introduction to TCP/IP model and packet structures.
    - Hands-on activity: Use Wireshark to capture and analyze network packets.

Week 7-8: Network Devices and Configuration

- **Lab 7:** Basic Router and Switch Configuration
    - Configuring IP addresses and basic routing on routers.
    - Hands-on activity: Set up a simple network using routers and switches.
- **Lab 8:** VLANs and Inter-VLAN Routing
    - Understanding Virtual LANs and configuring VLANs on switches.

- Hands-on activity: Set up VLANs and configure inter-VLAN routing.

Week 9-10: Wireless Networking

- **Lab 9:** Wi-Fi Basics
  - Introduction to wireless networking standards (802.11a/b/g/n/ac/ax).
  - Hands-on activity: Set up and configure a wireless access point.
- **Lab 10:** Wireless Security
  - Understanding security protocols (WEP, WPA, WPA2).
  - Hands-on activity: Configure wireless security settings on an access point.

Week 11-12: Network Security

- **Lab 11:** Firewalls and NAT
  - Basics of network security, firewall configurations, and Network Address Translation (NAT).
  - Hands-on activity: Configure firewall rules and NAT settings.
- **Lab 12:** Introduction to VPNs
  - Basics of Virtual Private Networks (VPNs).
  - Hands-on activity: Set up a simple VPN connection.

Week 13-14: Troubleshooting and Maintenance

- **Lab 13:** Network Troubleshooting Tools
  - Overview of tools like ping, traceroute, and nslookup.
  - Hands-on activity: Use troubleshooting tools to diagnose network issues.
- **Lab 14:** Network Monitoring
  - Introduction to network monitoring and management tools.
  - Hands-on activity: Set up basic network monitoring with a tool like Nagios or Zabbix.

Week 15-16: Advanced Topics and Review

- **Lab 15:** Introduction to IPv6
  - Overview of IPv6 addressing and configuration.
  - Hands-on activity: Configure IPv6 addresses and routing.
- **Lab 16:** Review and Final Project
  - Review of key concepts and lab exercises.
  - Hands-on activity: Implement a network design project incorporating learned concepts.

Additional Tips:

- **Pre-Labs:** Provide pre-lab reading materials and tutorials to help students prepare for each lab session.

- **Post-Labs:** Include reflection questions or mini-quizzes to reinforce learning.
- **Resources:** Utilize network simulation tools like Cisco Packet Tracer or GNS3 for lab activities.

This outline should give beginners a comprehensive introduction to computer networks through hands-on experience. Adjustments can be made based on the specific needs and pace of the learners.