

Print Date: 12/10/2018

**Course Objectives/Course Outline
Spokane Community College**

Course Title: Backend Development II
Prefix and Course Number: CIS 259

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Explain Node's Architecture
- Use npm and Node's event-driven modules for networking and HTTP web servers
- Implement Node for Networking
- Use Node's Common Built-in Libraries
- Work with Streams
- Scale Node Applications

Course Outline:

- I. Node's Architecture: V8 and libuv
- II. Concurrency Model and Event Loop
 - A. The Event Loop
 - B. The Call Stack
 - C. Handling Slow Operations
- III. Node's Event-driven Architecture
 - A. Callbacks, Promises, and Async/Await
 - B. Event Emitter
 - C. Arguments, Errors, and Order of Listeners
- IV. Node for Networking
 - A. TCP Networking with the Net Module
 - B. Working with Multiple Sockets
- V. Node's Common Built-in Libraries
 - A. Working with the Operating System
 - B. Working with the File System
 - C. Console and Utilities
- VI. Working with Streams
 - A. Implementing Readable and Writable Streams
 - B. Duplex Streams and Transform Streams
- VII. Clusters and Child Processes
 - A. Scaling Node.js Applications
 - B. Child Processes Events and Standard IO
 - C. Shared State and Sticky Load Balancing