

SAN DIEGO COMMUNITY COLLEGE DISTRICT
CONTINUING EDUCATION
COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER

COMP 693

COURSE TITLE

JAVASCRIPT FRAMEWORKS

TYPE COURSE

NON-FEE

VOCATIONAL

CATALOG COURSE DESCRIPTION

React is one piece of the MongoDB, Express, React, and Node (MERN) development stack. React was designed to make the process of building modular, reusable user interface components simple and intuitive. This course will guide students through the foundations of React development, covering setup, components, elements, and state, as well as how to leverage the JSX syntax extension to improve ability to nest elements within each other. React Router, React-Bootstrap, and forms development with React are also covered. (FT)

LECTURE/LABORATORY HOURS

60

ADVISORIES

Successful completion of COMP 691 NOSQL DOCUMENT DATABASES; and Successful completion of COMP 692 BUILDING RESTFUL WEB APIS

RECOMMENDED SKILL LEVEL

Possess a 12th grade reading level; ability to communicate effectively in the English language.

INSTITUTIONAL STUDENT LEARNING OUTCOMES

1. Social Responsibility

SDCE students demonstrate interpersonal skills by learning and working cooperatively in a diverse environment.

2. Effective Communication

SDCE students demonstrate effective communication skills.

3. Critical Thinking

SDCE students critically process information, make decisions, and solve problems independently or cooperatively.

4. Personal and Professional Development

SDCE students pursue short term and life-long learning goals, mastering necessary skills and using resource management and self-advocacy skills to cope with changing situations in their lives.

COURSE GOALS

1. Understand what React is and how it can be used to code web applications faster and more efficiently
2. Learn how to use create-react-app to install React and quickly build a React project
3. Explore the role of JSX and how it is used within React
4. Learn how to create React elements and components
5. Learn how to work with class components
6. Understand the process of working with state in React
7. Learn how to use React events
8. Learn about React Router
9. Learn how to issue GET, POST, and DELETE requests from a React application

COURSE OBJECTIVES

Upon successful completion, the student will be able to:

1. Describe the role of React in the MERN stack and how it can be leveraged within modern web application development
2. Quickly install React and bootstrap an application by utilizing create-react-app
3. Code JSX within a React application
4. Code React elements and components
5. Code a class component
6. Take advantage of state in React to persist data between React components
7. Add React events to an application to respond to user interactions
8. Use React Router to create single page applications (SPAs) or to add bookmarkable links within a web application
9. Issue GET, POST, and DELETE requests from a React application to RESTful Web API endpoints

SECTION II

COURSE CONTENT AND SCOPE

2. Introduction to React 2.1. What is React?
 - 2.2. Server-Less Hello World
 - 2.1.1. Server setup
 - 2.1.2. The React library
3. React Components
 - 3.1. React classes
 - 3.2. Composing components
 - 3.3. Passing data
 - 3.3.1. Using properties
 - 3.3.2. Property validation
 - 3.3.3. Using children
 - 3.4. Dynamic composition
4. React State
 - 4.1. Setting state
 - 4.2. Async state initialization
 - 4.3. Event handling
 - 4.4. Communicating from child to parent
 - 4.5. Stateless components
 - 4.6. Designing components
 - 4.6.1. State vs. props
 - 4.6.2. Component hierarchy
 - 4.6.3. Communication
 - 4.6.4. Stateless components
5. Routing with React Router
 - 5.1. Routing techniques
 - 5.2. Simple routing
 - 5.3. Route parameters
 - 5.4. Route query string
 - 5.5. Programmatic navigation
 - 5.6. Nested routes
 - 5.7. Browser history
6. Forms
 - 6.1. More filters in the list API
 - 6.2. Filter form
 - 6.3. The get API
 - 6.4. Edit page
 - 6.5. User interface components
 - 6.5.1. Number input
 - 6.5.2. Date input
 - 6.6. Update API
 - 6.7. Using update API
 - 6.8. Delete API
 - 6.9. Using the delete API
7. React-Bootstrap

- 7.1. Bootstrap installation
- 7.2. Navigation
- 7.3. Table and panel
- 7.4. Forms
- 7.5. Grid-based forms
- 7.6. Inline forms
- 7.7. Horizontal forms
- 7.8. Alerts
- 7.9. Validations
- 7.10. Results
- 7.11. Modals
- 8. Server Rendering and Advanced Features
 - 8.1. Server rendering
 - 8.1.1. Basic server rendering
 - 8.1.2. Handling state
 - 8.1.3. Initial state
 - 8.1.4. Server-side bundle
 - 8.1.5. Back-End Hot Module Replacement (HMR)
 - 8.1.6. Routed server rendering
 - 8.1.7. Encapsulated fetch
 - 8.2. Advanced Features
 - 8.2.1. MongoDB aggregate
 - 8.2.2. Pagination
 - 8.2.3. Higher order components
 - 8.2.4. Search bar
 - 8.2.5. Google sign-in
 - 8.2.6. Session handling

APPROPRIATE READINGS

Reading assignments may include, but are not limited to: reading assignments from the textbook, supplemental reading assignments, industry-related periodicals or magazines, manuals, online help pages, articles posted on the Internet, and information from Web sites, online libraries and databases. Topics should be related to the MERN stack and may include information relating to components of the MERN stack including MongoDB, Express, React, and Node.

WRITING ASSIGNMENTS

Writing assignments may include, but are not limited to: completing assigned reports, providing written answers to assigned questions, performing internet research and reporting on that research. An example would include a case study of how React can be used on the front-end to consume RESTful Web Application Programming Interfaces (API).

OUTSIDE ASSIGNMENTS

Assignments may include, but are not limited to: appropriate internet research, reading, preparing reports and studying as needed to perform successfully in class. An appropriate assignment for instance, would include demonstrating how to use the React-Bootstrap module to integrate Bootstrap components within a React application.

APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

Assignments which demonstrate critical thinking may include, but are not limited to using React Router to create single page applications (SPAs) or to add bookmarkable links within a web application.

EVALUATION

Evaluation that a student has met the course competencies will include multiple measures of performance related to the course objectives. Evaluation methods may include, but are not limited to performance in a variety of activities and assignments, such as completing a research project individually or in a group, hands-on projects, demonstration of use of the internet, quizzes, class participation, written and practical tests, attendance and punctuality.

Upon successful completion of all courses in the program a Certificate of Program Completion will be issued.

METHOD OF INSTRUCTION

Methods of instruction may include, but are not limited to, lecture, in-class and online discussions, hands-on demonstrations, computer-assisted instruction, field trips, and laboratory assignments.

This course, or sections of this course, may be offered through distance education.

TEXTS AND SUPPLIES

OER Textbooks

React JS: Notes for Professionals,
<https://books.goalkicker.com/ReactJSBook/>

The React Handbook,
by Flavio Copes, <https://www.freecodecamp.org/news/the-react-handbookb71c27b0a795/>

Supplies:

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Pen, journal (composition book), notebook paper and a soft 3-ring binder, or a one-subject 110 sheet college ruled notebook, and appropriate storage media such as a USB Drive, external hard drive, or cloud-based storage.

PREPARED BY Zak Ruvalcaba DATE April 7, 2021

REVISED BY _____ DATE _____

Instructors must meet all requirements stated in Policy 3100 (Student Rights, Responsibilities and Administrative Due Process), and the Attendance Policy set forth in the Continuing Education Catalog.

REFERENCES:

San Diego Community College District Policy 3100
California Community Colleges, Title 5, Section 55002
Continuing Education Catalog