Secondary Course Description

COVER PAGE

1. Course Title: Internet Engineering II

2. Transcript Title / Abbreviation:

3. Transcript Course Code / Number (Office Use Only):

4. School: Davis Senior High School

5. **District:** Davis Joint Unified School District

6. Department: CTE

7. Graduation Requirement it meets: Elective, CTE

8. Length of Course: 1 year

9. Graduation Credits: 10

10. School / District Web Site: http://www.djusd.net

11. CBEDS Course Code:

12. School Contact:

Name: Kevin Anderson

Title/Position: Teacher

Phone: 530-757-5400   **Ext.:**

Fax:

E-mail: kanderson@djusd.net

13. Subject Area:

- [ ] History/Social Science
- [ ] English
- [ ] Mathematics
- [ ] Science
- [x] CTE
- [ ] Language other than English
- [ ] Visual & Performing Arts
- [x] DJUSD Graduation Elective
- [ ] College Prep Elective (will seek UC/CSU approval)

14. Grade Level(s): 10-12

15. UC/CSU Requirement:

16. Seeking "Honors" Distinction? [ ] Yes   [x] No

17. GPA Types:

18. Credit Value:

- [ ] 0.5 (half year or semester equivalent)
- [x] 1.0 (one year equivalent)
- [ ] 2.0 (two year equivalent)
- [ ] Other: _____

19. Was this course previously approved by UC? [x] Yes   [ ] No

   If so, in what year? _____2016_____   Under what course title? ___Internet Engineering 2_____

20. Pre-Requisites: Internet Engineering I
   Co-Requisites:

21. <u>Preliminary Approval</u> - Secondary Site Principal Signature (<u>Must</u> be signed before proceeding to Step 22):
   _____

22. Date Course Proposal with Preliminary Approval (Step 15) sent to Associate Superintendent, Educational Services: _____

23. Review & Approval:

Date		Signature
_____	Site Curriculum and Instruction Leadership Team	Signature/Title _____
_____	Secondary Department Articulation/Collaboration	Signature/Title _____

Secondary Principal Signatures: _____   _____

Date: _____   _____

BACKGROUND INFORMATION

Brief Course Description:
Internet Engineering 2 is a follow-up course to Internet Engineering 1. It is designed to prepare students for post-secondary success in the Information and Communication Technologies (ICT) field. The course engages students with studies of: the network protocols which make the Internet possible; how networks communicate with one another, methods used to increase scalability, reliability, and security in the modem network, and college and career preparation in the JCT field. This course integrates the theory and application of network communications, exposing students to media that invites them to consider how Internet engineers think, design, and solve problems. Students have several opportunities to produce college-ready writing, collaborate, research, develop study skills, and develop 21st century skills in this course.

Context for Course:

List the State/District Standards addressed in this course.

This course is designed to be capstone course, part of a Career Technical Education program of study, a Linked Learning Pathway, a Regional Occupational Program and/or a California Partnership Academy. In that context, this course would be a required CTE course. As the Information and Communication Technologies industry sector thrives and expands, the need for qualified technology professionals continues to grow. This course hopes to address this labor market need by preparing students for the rigors of college level academic work and majors relating to Internet engineering or computer science.

History of Course Development:
The Internetworking I/II course has been offered in the past. There is now the opportunity to apply for UC A-G credit for students. Internet Engineering 2 would be the second year capstone course. This would replace Internetworking II.

COURSE GOALS AND/OR MAJOR STUDENT OUTCOMES

Career Technical Education serves and meets the needs all students. This course is articulated to Sacramento City college and helps students who do not want to follow a traditional college path develop skills necessary to succeed in the workforce. This course promotes logic and troubleshooting skills necessary for all students to succeed. This course also helps students follow a college career path through Computer Science and Management Information Systems.

COURSE OBJECTIVES

Setting up virtual lans
Configure inter-Vian routing
Troubleshooting networks and Internet connectivity Configure routers and switches
Configure dynamic and static routing
Design logical addressing of networks
Implement routing protocols
Design and implement access control lists
Evaluate network performance and security
Troubleshoot problems using an organized, layered procedure Use of binary and hexadecimal math

COURSE OUTLINE

About the Cisco Networking Academy Program: Sponsored by Cisco Systems, Inc., the Cisco Networking Academy Program is a comprehensive learning program which provides students with the Internet technology skills essential in a global economy. The Networking Academy program delivers Web based content, online assessment, student performance tracking, hands-on labs, instructor training and support, and preparation for industry-standard certifications.

The Networking Academy Curriculum:

The Networking Academy curriculum is available through High Schools, Community Colleges, and 4-year colleges worldwide. It is also available at some technical colleges as well. The program gives students at educational institutions and in-transition workers in demand Internet technology skills for designing, building and maintaining networks. Combining instructor-led, online education with hands-on laboratory exercises, the curriculum enables students to apply what they learn in class while working on actual networks. Cisco has created partnerships with schools and colleges, businesses, nonprofit organizations, international organizations, unions, and government agencies, and works to provide real-world skills for all students in the certification tracks. Many students use the training to get a higher-paying entry-level job, or improve their job skills for promotion opportunities.

Curriculum:

Cisco Certified Entry Network Technician (CCENT), a 2-year (4 semester) curriculum, is the first step in a Cisco career certification path. Courses must be taken in sequence; students who cannot complete all 4 semesters at Davis High School are encouraged to continue their certification through many local public and private colleges. The program emphasizes the use of decision-making and problem-solving techniques in the application of science, mathematics, communication and social studies concepts to solve networking problems. This course is designed to prepare students for further study and careers in Computer Science, Computer Engineering, and/or Information Communication Technology (ICT, formerly IT). Students will learn about theoretical networking models, including the OSI Theoretical Models and the TCP/IP Theoretical Model. While learning about the theoretical and applied design and architecture of different information systems, students also gain understanding of network protocols, distributed algorithms, challenges and solutions related to information systems design and management. Students analyze the ways in which technology is changing both society and economics through case studies of individuals and firms who have reshaped the global economy. Students acquire the ability to evaluate information system performance at various levels of granularity, with emphasis on network systems level design and performance. They then analyze this real-world data against the theoretical models. Students learn to use binary, hexadecimal, and octal mathematical models to evaluate system throughput, flow, utilization, etc. In addition, students learn the principles involved in the formal design and management of computer information systems network and the use of tools such as probability theory, queuing theory, distributed systems, operating systems design, information systems measurement protocols, and heuristic design procedures. As part of their 21st Century College and Career Portfolio, students will show that they have the soft skills necessary to succeed in College and Careers.

TEXTS AND SUPPLEMENTAL INSTRUCTIONAL MATERIALS

Title, Author, Publisher, Edition:
Cisco Academy Website has all of the course materials for students.

Previously Adopted? ☐ Yes   ☐ **No (If no, provide information directly below)**

Cost per book	**Total Cost**	**Budget Source**

Other:

DIFFERENTIATED INSTRUCTIONAL METHODS AND/OR STRATEGIES

Strategies for Supporting School Goal of Improving Writing Skills:
Students will write reports regarding network implementation, troubleshooting, and form summaries within these reports.

ASSESSMENT METHODS AND/OR TOOLS

Exams, and Assignments.
Key assessments are the hands-on Skills Exam, and comprehensive Final

ASSESSMENT CRITERIA

Grading will be based on completion of hands-on laboratory exercises, online (electronic) examinations, and completion of other assignments. The grading scale for the courses is based on a weighted average of these levels, with particular weight being given to the hands-on laboratory exercises.

HONORS COURSES ONLY

Indicate how this honors course is different from the standard course.