I. CATALOG INFORMATION

A. Discipline: COMPUTER SCIENCE (CS)

B. Subject Code and Number: CS M01

C. Course Title: Introduction to Computer Science

D. Credit Course units:

Units: 3

Lecture Hours per week: 2.5

Lab Hours per week : 1.5

Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 43.75 - 43.75

Laboratory/Activity Hours:

Laboratory/Activity Hours 26.25 - 26.25

Total Combined Hours in a 17.5 week term: 70 - 70

F. Non-Credit Course hours per week _____

G. May be taken a total of: [X] 1 [ ] 2 [ ] 3 [ ] 4 time(s) for credit

H. Is the course co-designated (same as) another course: No [X] Yes [ ]
If YES, designate course Subject Code & Number: _____

I. Course Description:

Provides an introduction to various topics in computer science. Discusses computer hardware, computer operating systems, algorithms, computer programming, computer networks, the Internet, databases, ethical issues, and current events which involve technology issues.

J. Entrance Skills

*Prerequisite: No [X] Yes [ ] Course(s)

_____

*Corequisite: No [X] Yes [ ] Course(s)

_____

Limitation on Enrollment: No [X] Yes [ ]

_____

Recommended Preparation: No [ ] Yes [X] Course(s)
Basic computer literacy skills including file manipulation, editing of documents, and using an operating system.

Other: No [X] Yes [ ]

_____

K. Other Catalog Information:

Course Credit Limitation:

UC - CS M01 combined with CIS M140 or CS M10A: maximum credit, 4 units.

II. COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	describe a broad foundational knowledge of the principle elements of computer science.	Graded assignments Programming projects Quizzes Exams
2	design program solutions with computer problem solving concepts.	Graded assignments Programming projects Quizzes Exams
3	design basic algorithms to solve programming problems.	Graded assignments Programming projects Quizzes Exams
4	describe and explain what software engineering is and why it is important.	Graded assignments Programming projects Quizzes Exams
5	explain fundamental computer network concepts.	Graded assignments Programming projects Quizzes Exams
6	explain fundamental architecture concepts of computer design.	Graded assignments Programming projects Quizzes Exams
7	explain basic Internet concepts.	Graded assignments Programming projects Quizzes Exams

8	evaluate societal and ethical issues involving computers.	Graded assignments Programming projects Quizzes Exams

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
12.00%	What is a Computer? • Definition of a computer • Storing data • Computer access • Computers and society	1, 6, 8
16.00%	Computer Hardware • Memory • Files • Input/Output • Components • Connections	1, 5, 8
35.00%	Software Concepts • Computer vs. natural languages • Programming language concepts • Stages of program design • Algorithm development • Program development • Operating systems	1, 2, 3, 4, 8
13.00%	Network/Internet Concepts • Network introduction • Topologies • Security • Internet introduction • Network layers • Networks and society	1, 5, 7, 8
13.00%	Database Concepts • Database introduction • Different database types • Ethical issues	1, 2, 3, 8
11.00%	Frontiers of Computing • Artificial intelligence • Simulations • Ethical issues	1, 4, 8
	An instructor can vary the order of the topics, or add enrichment topics, without a loss of continuity in the Computer Science program.	
Lab (must total 100%)		
12.00%	• Skills needed for most labs • Internet use • Binary and hexadecimal number systems • Digitization of data	1, 3, 5, 8
	• Computer hardware including addressing, memory, and hard drives • The computer processor including the main processor, cache, and	

19.00%	registers • Machine language	2, 3, 6, 8
16.00%	• The layer view of computer systems • Computer operating system concepts including basic operating system tasks, user interface, and security • Assembly language	2, 3, 6, 8
21.00%	• Trouble shooting programs • Modification of programs using different methodologies • Incorporation of new tasks into a program	2, 3, 4, 8
32.00%	• Government policy regarding technology • Ethical considerations, including privacy, net neutrality, and security • Network equipment, network topologies, and other network considerations • Databases using both Query by Example and Structured Query Language (SQL)	1, 2, 5, 7, 8

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	writing answers to discussion questions from the text such as comparing and contrasting serial access versus parallel access for hard drives.
2	writing essays on assigned topics such as the advantages/disadvantages of one personal computer (PC) over another.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	assigned readings from the text and other sources such as the Internet, newspapers, journals, and magazines; for example, an article on current programming practices from the Communications of the ACM (American Computing Machinery) publication.
2	research using the Internet incorporating concepts including searching for material and evaluating information.
3	cooperative group programming projects to allow students to have a collaborative environment to evaluate different approaches to the problem(s) presented.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	designing algorithms such as a search algorithm.
	translating algorithms into programs such as taking a search algorithm and writing a

2	computer program to implement it.
3	analyzing Internet content to understand what is appropriate and reliable.
4	evaluating ethical and legal issues involving organizations compiling personal information and their uses of such information.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

[X] Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)

[X] Lecture/Discussion

[X] Laboratory/Activity

[X] Other (Specify)
Class discussions on ethical and legal considerations involving technology
Group work on programs
Student/instructor
Going over homework assignments

[ ] Optional Field Trips

[ ] Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

[ ] Essay Exam	[X] Classroom Discussion	[X] Skill Demonstration
[X] Problem Solving Exam	[X] Reports/Papers/ Journals	[ ] Participation
[X] Objective Exams	[X] Projects	[X] Other (specify)

Written homework exercises to demonstrate knowledge of concepts
Programming assignments requiring students to correct and/or modify programs
Quizzes where students demonstrate their knowledge of the material

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Brookshear, Glenn, and Dennis Brylow. Computer Science: An Overview. 12th ed. Pearson, 2015.

Dale, Nell, and John Lewis. Computer Science Illuminated. 6th ed. Jones and Bartlett Learning, 2015.

VIII. STUDENT MATERIALS FEES

[X] No [ ] Yes

IX. PARALLEL COURSES

College	*Course Number*	*Course Title*	*Units*
CSU Stanislaus	CS 1500	Computer Programming I	3
CSU Channel Islands	COMP/IT 105	Introduction to Programming	3
UC Davis	ENG CS 15	Intro to Computers	4

X. MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:
Master's in computer science or computer engineering OR Bachelor's in either of the above AND Master's in mathematics, cybernetics, business administration, accounting or engineering OR Bachelor's in engineering AND Master's in cybernetics, engineering mathematics, or business administration OR Bachelor's in mathematics AND Master's in cybernetics, engineering mathematics, or business administration OR Bachelor's degree in any of the above AND a Master's degree in information science, computer information systems, or information systems OR the equivalent.

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

   [ ] Pass/No Pass only (no letter grade possible); or
   [X] Letter grade (P/NP possible at student option)

2. Degree status:
   Either [X] Associate Degree Applicable; or [ ] Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?
   Yes: [X] No: [ ] If YES, what section(s)?

   [ ] A1 - Natural Sciences - Biological Science
   [ ] A2 - Natural Sciences - Physical Science
   [ ] B1 - Social and Behavioral Sciences - American History/Institutions
   [ ] B2 - Social and Behavioral Sciences - Other Social Behavioral Science
   [ ] C1 - Humanities - Fine or Performing Arts
   [ ] C2 - Humanities - Other Humanities
   [ ] D1 - Language and Rationality - English Composition
   [X] D2 - Language and Rationality - Communication and Analytical Thinking
   [ ] E1 - Health/Physical Education
   [ ] E2 - PE or Dance
   [ ] F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: [X] No: [ ]

2. If YES do you recommend this course for inclusion on the CSU General Education list?
   Yes: ☐ No: ☒ If YES, which area(s)?

   A1 ☐ A2 ☐ A3 ☐ B1 ☐ B2 ☐ B3 ☐ B4 ☐

   C1 ☐ C2 ☐ D1 ☐ D2 ☐ D3 ☐ D4 ☐ D5 ☐

   D6 ☐ D7 ☐ D8 ☐ D9 ☐ D10 ☐ E ☐

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: ☒ No: ☐

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes: ☐ No: ☒

IGETC Area 1: English Communication

- ☐ English Composition
- ☐ Critical Thinking-English Composition
- ☐ Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

- ☐ Mathematical Concepts

IGETC Area 3: Arts and Humanities

- ☐ Arts
- ☐ Humanities

IGETC Area 4: Social and Behavioral Sciences

- ☐ Anthropology and Archaeology
- ☐ Economics
- ☐ Ethnic Studies
- ☐ Gender Studies
- ☐ Geography
- ☐ History
- ☐ Interdisciplinary, Social & Behavioral Sciences
- ☐ Political Science, Government & Legal Institutions
- ☐ Psychology
- ☐ Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- ☐ Physical Science Lab or Physical Science Lab only (none-sequence)
- ☐ Physical Science Lecture only (non-sequence)
- ☐ Biological Science

- [ ] Physical Science Courses
- [ ] Physical Science Lab or Biological Science Lab Only (non-sequence)
- [ ] Biological Science Courses
- [ ] Biological Science Lab course
- [ ] First Science course in a Special sequence
- [ ] Second Science course in a Special Sequence
- [ ] Laboratory Activity
- [ ] Physical Sciences

IGETC Area 6: Language other than English

- [ ] Languages other than English (UC Requirement Only)
- [ ] U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)
- [ ] U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:
Research using the Library's print and online resources to find current articles in newspapers, news magazines, academic journals etc. dealing with such topics as net neutrality and the ethical issues surrounding the uses of personal information.

B. Are the currently held library resources sufficient to support the course assignment?

YES: [X] NO: [ ]

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

CS M01: Not Applicable

XIV. WORKPLACE PREPARATION

CS M01: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

1. Mode of Delivery

- [ ] Online (course will be delivered 100% online)
- [X] Online with onsite examinations (100% of the instruction will occur online, but examinations and an orientation will be scheduled onsite)
- [X] Online/Hybrid (a percentage of instruction will be held online and the remaining percentage of instruction will be held onsite)
  - [ ] Lab activities will be conducted onsite
- [ ] Televideo (Examinations and an orientation will be held onsite)

☐ Teleconference

☐ Other

2. Need/Justification

   Improve general student access.

3. Describe how instructors teaching this course will ensure regular, effective contact with and among students.

   The instructor will be available at a minimum for 6 weekday hours/week during the day at set times through email so that the students will know when the instructor will be available. The instructor will also monitor email during the week and answer student inquires. For the mode where the lecture only is online, the instructor will be available through email 3 hours/week at set times and available for labs in the standard classroom setting.

4. Describe how instructors teaching this course will involve students in active learning.

   Materials will be available online whereby the student can download and view course materials. Take quizzes through the environment. Turn in assignments and labs through the online environment. This includes allowing for the instructor to provide grades and general comments as well as making comments in any material submitted by the student. Students should be able to see all their grades through the environment. The instructor should be able to modify grades and enter grades for non-online activities such as exams. Participate in discussions. The environment should allow students to participate in open discussions with other students and with the instructor in an open forum monitored by the instructor. The students should also have a mechanism for having private discussions with the instructor. This can be through the environment or through email.

5. Explain how instructors teaching this course will provide multiple methods of content representation.

   Instructors will provide written text, diagrams, illustrations, and references to recorded (video and audio) material.

6. Describe how instructors teaching this course will evaluate student performance.

   Quizzes - In-class these are given at the end of every chapter. The same time frame is used online.
   Homework – The homework and the solutions for both on campus and online sessions will be available to students through the Learning Management System.

   Labs – Through the text's companion lab manual and through additional instructor provided material.
   Exams: Regardless of delivery mode exams are always held in-class at Moorpark College.

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

General Education Division of Learning [check all applicable boxes]:

☐ Natural Sciences

- [ ] Biological Science
- [ ] Physical Science

- [ ] Social and Behavioral Sciences
  - [ ] American History/Institutions
  - [ ] Other Social Science
- [ ] Humanities
  - [ ] Fine or Performing Arts
  - [ ] Other Humanities
- [X] Language and Rationality
  - [ ] English Composition
  - [X] Communication and Analytical Thinking
- [ ] Health/Physical Education
- [ ] Ethnic/Women's Studies

Check either Option 1 or Option 2

- [ ] **OPTION #1:** Moorpark College has already received approval from the CSU and/or UC systems for this course to fulfill a GE requirement. Note: This option applies only to technical revisions and updated courses.
- [X] **OPTION #2:** Moorpark College has not received approval from the CSU and/or UC systems for this course to fulfill a GE requirement. This option applies to all new and substantively revised courses.

XVII. STUDENT MATERIALS FEE ADDENDUM

CS M01: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

CS M01: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: COMPUTER SCIENCE (CS)

Discipline Code and Number: CS M01

Course Revision Category: Outline Update

Course Proposed By:

Originating Faculty Esmaail Nikjeh 04/17/2017

Faculty Peer: _____

Curriculum Rep: Scarlet Relle 10/15/2017

Department Chair: Erik Reese 10/15/2017

Division Dean: Mary Rees 05/24/2017

Approved By:

Curriculum Chair: Jerry Mansfield 11/10/2017

Executive Vice President: _____

Articulation Officer: Letrisha Mai 10/19/2017

Librarian: Mary LaBarge 10/19/2017

Implementation Term and Year: _____

Approval Dates:

Approved by Moorpark College Curriculum Committee: 11/07/2017

Approved by Board of Trustees (if applicable): _____

Approved by State (if applicable): 01/29/2018