University of Hawaii Maui College
Course Outline

1. Alpha ICS Number 352

   Course Title Networks and Security

   Credits 3

   Department Business/Hospitality Author Debasis Bhattacharya

   Date of Outline 10/14/2011 Effective Date Fall 2012 5-year Review Date Fall 2017

2. Course Description: Provides detailed knowledge of the internet and its capabilities, explains details of HTTP, TCP/IP, ethernet, and wireless 802.11; routers, switches, and NAT; network and wireless security; practical experience in designing and implementing networks. Laboratory projects teach network design and administration. Discusses intermediate level topics on computer security. Examines legal, ethical and technology issues in computer access, confidentiality, authentication, privacy and intellectual property.

   Cross-list none

   Contact Hours/Type 3 hr. lecture

3. Pre-requisites MATH 203 or MATH 205, ICS 111, and ICS 200, all with a grade of C or better

   Pre-requisite may be waived by consent ☒ yes ☐ no

   Co-requisites none

   Recommended Preparation none

4. Function/Designation ☐ AA Category Additional Category

   ☐ AS Program Category List Additional Programs and Category:

   ☐ AAS Program PR - Program Requirement List Additional Programs and Category:

Chancellor *Approval Date*

Revised 10/13/2011

☒BAS ABIT IC - ABIT Information Technology Core Category: List Additional Programs and

☐ Developmental/Remedial ☐ Other/Additional: Explain:

See Curriculum Action Request (CAR) form for the college-wide general education student learning outcomes (SLOs) and/or the program learning outcomes (PLOs) this course supports.

☐ This course outline is standardized and/or the result of a community college or system-wide agreement. Responsible committee:

5. Student Learning Outcomes (SLOs): List one to four inclusive SLOs.
For assessment, link these to #7 Recommended Course Content, and #9 Recommended Course Requirements & Evaluation. Use roman numerals (I., II., III.) to designate SLOs
On successful completion of this course, students will be able to:

I. Apply critical thinking skills to evaluate information, solve problems, and make decisions
II. Apply quantitative reasoning to enhance independent or group decision-making skills
III. Demonstrate in written form appropriate knowledge of networking and security
IV. Utilize technology tools to conduct business-related research

6. Competencies/Concepts/Issues/Skills
For assessment, link these to #7 Recommended Course Content, and #9 Recommended Course Requirements & Evaluation. Use lower case letters (a., b....zz.)to designate competencies/skills/issues
On successful completion of this course, students will be able to:

a. Explain the basic types of networks, core network components and TCP/IP model
b. Demonstrate physical layer: wired and wireless connectivity
c. Demonstrate data link layer: Ethernet
d. Explain network layer: IP, IP addressing and routing
e. Analyze core operating system functionality
f. Explain transport layer: TCP
g. Analyze application layer: core Internet application protocols
h. Analyze network security and security devices
i Demonstrate the Internet as a networking platform
j, Demonstrate network device configuration
k. Explain organization of storage on networks
l. Explain the role of modern data centers
m. Demonstrate techniques in securing IT infrastructure
n. Explain the role of IT control and service management frameworks
o. Explain business continuity, grid computing, and cloud computing
p. Analyze system performance analysis and management and purchasing IT infrastructure

7. Suggested Course Content and Approximate Time Spent on Each Topic
Linked to #5. Student Learning Outcomes and # 6 Competencies/Skills/Issues

1. Core concepts in networking technology - 6 weeks (SLO I-IV; Competency a-g)
2. Core concepts in IT infrastructure security - 6 weeks (SLO I-IV; Competencies h to m)

3. User interfaces, configuration and virtualization - 3 weeks (SLO IV; Competency j to l)

8. Text and Materials, Reference Materials, and Auxiliary Materials
Appropriate text(s) and materials will be chosen at the time the course is offered from those currently available in the field. Examples include: Computer Networks by Tanenbaum and Wetherall, latest edition

Appropriate reference materials will be chosen at the time the course is offered from those currently available in the field. Examples include: Internet references on modern networks

Appropriate auxiliary materials will be chosen at the time the course is offered from those currently available in the field. Examples include: Internet tutorials on modern networks

9. Suggested Course Requirements and Evaluation
Linked to #5. Student Learning Outcomes (SLOs) and #6 Competencies/Skills/Issues
Specific course requirements are at the discretion of the instructor at the time the course is being offered. Suggested requirements might include, but are not limited to:

20%	Written midterm exam covering lectures (SLO I, II and III; Competencies a to g)
30%	Written final exam covering lectures (SLO I, II and III; Competencies a to p)
30%	4 Individual Assignments (SLO I, II, III and IV Competencies a to p)
20%	2 Learning Team Assignments (SLO I, II, III and IV Competencies a to p)

10. Methods of Instruction
Instructional methods will vary considerably by instructor. Specific methods are at the discretion of the instructor teaching the course and might include, but are not limited to:

a. quizzes and other tests with feedback and discussion;
b. lectures and class discussions;
c. problem solving;
d. lab activities including experiments, lab skill lessons, data analysis, and other activities;
e. group activities;
f. web-based assignments and activities;
g. group and/ or individual research projects with reports
h. other contemporary learning techniques (such as problem-based learning, investigative case-based learning, co-op, internships, self-paced programs, etc.)

11. Assessment of Intended Student Learning Outcomes Standards Grid attached

12. Additional Information:

Curriculum proposal number _____

University of Hawaii Maui College
Curriculum Action Request (CAR) Form
Course

For Banner use:
___ *SCACRSE*
___ *SCAPREQ*
___ *CAPPs*
___ *WebCT-Detl*
___ *CoReq-Detl*
___ *Equiv-Detl*
___ *Old Inactivated*
___ *Crosslist done*
___ *Another prereq*

1. Author(s): Debasis Bhattacharya

2. Department: Business/Hospitality

3. Date submitted to Curriculum Committee: 10/14/2011

4. Type of action:

Addition:	*Modification:*	
☐ regular	☐ alpha/number	☒ pre-requisite
☐ other; specify:	☐ title	☐ co-requisite
	☐ credits	☐ recommended prep
	☐ description	☐ other; specify:

5. Existing course:
Alpha: Number: Title: Credits: credits

6. Proposed new/modified course:
Alpha: ICS Number:352 Title: Networks and Security Credits: 3

7. Reason for this curriculum action:
Add a pre-requisite of MATH 203 or 205 (Calculus) for students to be better prepared for the mathematics required for this course. Calculus is an integral requirement for the computational aspects of networking, and hence MATH 203 or 205 is recommended as a pre-requisite for this course.

8. New course description *(or year of catalog and page number of current course description, if unchanged)*:
Provides detailed knowledge of the internet and its capabilities, explains details of HTTP, TCP/IP, ethernet, and wireless 802.11; routers, switches, and NAT; network and wireless security; practical experience in designing and implementing networks. Laboratory projects teach network design and administration. Discusses intermediate level topics on computer security. Examines legal, ethical and technology issues in computer access, confidentiality, authentication, privacy and intellectual property.

9. Pre-requisite(s) – *see Prerequisite Style Sheet for samples*:
MATH 203 or MATH 205; ICS 111 and ICS 200, all with a grade of C or better; or consent. ☐ no ☒ yes

10. Co-requisite(s): none

11. Recommended preparation: none

12. Cross listed: ☒ no ☐ yes; cite course alpha & number:

13. Student contact hours per week:
3 hr. lecture _____ hr. lab _____ hr. lecture/lab _____ hr. other; explain:

14. Grading: Standard (Letter, Cr/NCr, Audit) Explain, if not Standard grading:

15. Repeatable for credit: ☒ no ☐ yes; maximum is _____ credit or ☐ unlimited.
(*Most courses are not repeatable for additional credit; exceptions are courses such as internships and co-op courses.)*

16. Special fees required: ☒ no ☐ yes; explain:

17. Proposed term of first offering: Fall_____ semester of 2012_____ year.

18. List catalog used and then degrees, certificates, prerequisites, and catalog sections **and their page numbers** affected by this proposal: Catalog 2011-2012 page 24 ABIT, page 129 course descriptions and page 23 ABIT requirements

19. Maximum enrollment: 24 Rationale, if less than 35: Current room capacity in KAA 219

20. Special resources *(personnel, supplies, etc.)* required: ☒ no ☐ yes; explain:

21. Course is restricted to particular room type: ☐ no ☒ yes; explain: Computer lab room required

22. Special scheduling considerations: ☒ no ☐ yes; explain:

23. Method(s) of delivery appropriate for this course: *(check all that apply)*
☒ Traditional ☐ HITS/Interactive TV ☐ Cable TV ☒ Online ☒ Hybrid
☐ Other, explain:

24. Mark all college-wide general education SLOs this course supports.

☒ Std 1 - Written Communications ☒ Std 2 – Quantitative Reasoning
☒ Std 3 - Information Retrieval and Technology ☒ Std 4 - Oral Communication
☒ Std 5 - Critical Reasoning ☒ Std 6 – Creativity
☐ Other General Education SLOs, such as Ethics, Scientific Inquiry, or Service Learning.
Explain:

25. List all program SLOs this course supports? (*Explain, if necessary)*

Program SLO 1: 2.1 Demonstrate in written form appropriate knowledge of networking and security Explain:
Program SLO 2: 2.2 Utilize technological tools to conduct business-related research Explain:
Program SLO 3: 3.1 Apply critical thinking skills to evaluate information, solve problems, and make decisions Explain:
Program SLO 4: 3.3 Apply quantitative reasoning to enhance independent or group decision-making skills Explain:
Program SLO 5: Explain:

26. ☐ Course fulfills the following general education elective (GE) for CTE (Career Technical Education) AS/AAS degrees (GE):
    - ☐ English (EN)/Communication (CM) ☐ Quantitative Reasoning (QR)
    - ☐ Humanities (HU) ☐ Natural Science (NS) ☐ Social Science (SS)
    - ☐ Other:
    - ☐ Course is a requirement for the AASprogram(s) AS/AAS degree or certificate
    - ☐ Course is a program elective for the program(s) AS/AAS degree or certificate

27. ☐ Course fulfills the following general education elective (GE) for the ABIT BAS degree:
    - ☐ English (EN)/Communication (CM) ☐ Quantitative Reasoning (QR)
    - ☐ Humanities (HU) ☐ Natural Science (NS) ☐ Social Science (SS)
    - ☐ Other:
    - ☒ Course is a requirement for the ABIT BAS degree
    - ☐ Course is a program elective for the ABIT BAS degree

28. ☐ Course fulfills a requirement for a proposed BAS degree:
    - ☐ Pre- requisite course ☐ Core
    - ☐ Capstone Course (CC) ☐ Other:
    - ☐ Course is a program elective for a proposed BAS degree
    - ☐ Course fulfills the following general education elective (GE) for the proposed BAS degree:
        - ☐ English (EN)/Communication (CM) ☐ Quantitative Reasoning (QR)
        - ☐ Humanities (HU) ☐ Natural Science (NS) ☐ Social Science (SS)
        - ☐ Other:
    - ☐ Course is applicable to the following additional BAS degrees:

29. ☐ Course satisfies the following category for the AA degree*:
    - ☐ Category I: Foundations/Skills: Foundations I
        - ☐ Written Communication in English (FW)
        - ☐ Global and Multicultural Perspectives (FG)
            - ☐ Group A (before 1500 CE)
            - ☐ Group B (since 1500 CE)
            - ☐ Group C (pre-history to present)
        - ☐ Symbolic Reasoning (FS)
    - ☐ Category I: Foundations/Skills: Foundations II
        - ☐ Numeracy (FN)
        - ☐ Oral Communication in English (FO)
        - ☐ Computer/Information Processing and Retrieval (FI)
    - ☐ Category II: Breadth of Understanding and Experience
        - ☐ Human Understanding
            - ☐ The Individual (IN)
            - ☐ The Community (CO)
                - ☐ The Community – Global Perspective (CG)
        - ☐ Human Expression (HE)
        - ☐ Environmental Awareness (EA)
            - ☐ Environmental Awareness – Global Perspective (EG)
        - ☐ Asia/Pacific Perspective (AP)

☐ Category III Focus/Specialization/Area of Interest
- ☐ Interest Area Discipline/Alpha:
- ☐ Elective (LE)

☐ Other Graduation Requirements
- ☐ Writing Intensive (is appropriate for WI)
- ☐ Environmental Awareness Lab/course with lab (EL)
- ☐ Hawaii Emphasis (HI)

* Submit the appropriate form(s) to have the course placed in the requested category (ies). Submit a course outline, CAR, and appropriate forms to both the Curriculum Committee and the Foundations Board, if the course satisfies Category I: Foundations/Skills: Foundations I or II.

30. Course ☐ increases ☐ decreases ☒ makes no change to number of credits required for program(s) affected by this action. Explain, if necessary:

31. Course is taught at another UH campus *(see Sections 5 and 6 above):*

☐ no Explain why this course is proposed for UHMC:

☒ yes Specify college(s), course, alpha, and number where same or similar course is taught:ICS 351 and ICS 423 at UH Manoa.

32. Course is:

☐ Not appropriate for articulation.

☐ Appropriate* for articulation as a general education course at:

☐UHCC ☐UH Manoa ☐UH Hilo ☐UHWO

☐ Previously articulated* as a general education course at:

☐UHCC ☐UH Manoa ☐UH Hilo ☐UHWO

**Note: Submit Course Articulation Form if course is already articulated, or is appropriate for articulation, as a general education (100-, 200-level) course.*

☐ Standardized and/or appropriate for articulation by PCC or other UH system agreement at:

☐UHCC ☐UH Manoa ☐UH Hilo ☐UHWO Explain:

☒ Appropriate for articulation or has previously been articulated to a specific department or institution:

☐UHCC ☒UH Manoa ☒UH Hilo ☐UHWO ☐ Outside UH system Explain:

33. Additional Information *(add additional pages if needed):* ICS 352 provides knowledge of a critical component of IT infrastructure which are networks and security issues. Students learn the building blocks for IT systems and use this knowledge for advanced courses in databases, web development and the ABIT capstone.

University of Hawaii Maui College
Curriculum Action Request (CAR) Signature Page

Lisa Bhuiyan — 10/14/2011
Proposed by: Author or Program Coordinator — *Date*

Diane G. Inouye — 10/14/2011
Checked by: Academic Subject Area Representative to Curriculum Committee — *Date*

Cynthia Pascual — 10/14/2011
Requested by Department: Department Chair — *Date*

M. BRUCE — 1-30-12
Recommended by: Curriculum Chair — *Date*

Elaine Yuen — 2-1-12
Approved by Academic Senate: Academic Senate Chair — *Date*

2-4-12
Endorsed by: Chief Academic Officer — *Date*

2/8/12
Approved by: Chancellor — *Date*