

**Section 1. Proposed Course Outline** Math for Network Operations is designed to prepare students in the Computer Network program to learn and experience some of the math topics that are most suited to their field. The course would become the new requirement for the Computer Network program, replacing Math 95. Content that should be included in this course: understanding number bases (2, 8, 10, 16), binary operations, basic logical operators, basic internet protocol version 4 math, basic cryptography, hashing/checksum algorithms (including ISBN numbers). Other content that may be included: advanced logical operators, truth tables, character encoding (ASCII), RGB color representations, steganography.

Course Number: **MTH 82** Full Course Title for print catalog: **Math for Network Operations**

Abbreviated Course Title for Banner: **Math for Network Ops.** (30 character limit)

Prerequisites: MTH 020

Co-requisites:

Grade Option: [x]  Graded (with P/NP option)  [ ]  Pass/No Pass only

|  |  |  |  |
| --- | --- | --- | --- |
| **Number/Type Credits** | **Term Minimum Contact** | **Term Maximum Contact** | **11-Week Term Contact** |
| 4 Lecture | 40 hours (lecture credits x 10) | 48 hours (lecture credits x 12) | 44 hours (lecture credits x 11) |
|    Lec/Lab |    hours (lec-lab credits x 20) |    hours (lec-lab credits x 24) |    hours (lec-lab credits x 22) |
|    Lab |    hours (lab credits x 30) |    hours (lab credits x 36) |    hours (lab credits x 33) |
| 4 **Total credits (sum)** | 40 **Total hours (sum)** | 48 **Total hours (sum)** | 44 **Total hours (sum)** |

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| **Course Description (300 character limit):** |
| Satisfies math requirements for students in the Computer Networking program. Topics include understanding different number bases, binary math and logical operators, hexadecimal color representations, basic internet protocol math, hashing and checksum algorithms, and basic cryptography. |
| **Course Outcomes and Proficiencies** | **Assessments Planned** |
| What will the student ***know*** or ***be able to do*** at the end of the course?What ***attitudes*** related to the subject will the student hold? | What evidence will demonstrate that students have achieved course outcomes? (assessment tools may include departmental tests, written products, portfolios, juried performances, quizzes and exams, or alternative assessments such as qualitative studies, capstone projects, external reviewers, etc.) |
| **Upon successful completion of this course, the student will:** | **How each outcome will be assessed:** |
| \* Understand different number bases | Each outcome will be assessed through a combination of at least two of the following: tests, quizzes, activities, assignments, or projects. |
| \* Perform operations in base 2 (binary) |
| \* Understand basic logical operators |
| \* Understand and use basic IPv4 math |
| \* Understand and perform basic cryptography |
| \* Understand and use hashing/checksum algorithms |

**Course Content by Major Topics**What topics will be presented? What are the main activities of the course? What are the central themes?

(See sample at <http://www.lanecc.edu/copps>

**Topics:**

Content that should be included in this course: understanding number bases (2, 8, 10, 16), binary operations, basic logical operators, basic internet protocol version 4 math, basic cryptography (Caesar cypher and Diffie-Hellman algorithm), hashing/checksum algorithms (including ISBN numbers). Other content that may be included: advanced logical operators, truth tables, character encoding (ASCII), RGB color representations, steganography.

**Section 2. Proposal Information**

|  |  |  |
| --- | --- | --- |
| **Course Developer:** | **Type of Proposal** | **Type of Course:**  |
| Jessica Knoch | [x]  New course | [ ]  Lower Division Collegiate (transfer)  |
| Date: 11/28/2014 |  [x]  Currently 199 or 299  | [ ]  Professional/Technical (required or elective)  |
| Catalog year to take effect:  | [ ]  Experimental Course | [x]  Developmental, numbered below 100 |
| 2014-2015\_\_\_  |  [ ]  199 Special Studies |  |
| 2015-2016\_X \_\_  |  [ ]  299 Trends  |  |
|  | [ ]  Revised course (If increasing credits, use credit change form) |
|  | [ ]  Reactivated course with no change |
|  | [ ]  Reactivated course with changes  |

**Rationale:**

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| **How does this proposal further the goals of the program or department?**  |
| The new course would allow this population of students to complete their program requirements more easily, with less stress, less time, and less tuition. This matches the Math Division's goal of increasing student success, especially for students who place into developmental math courses. In addition, the content of this course would be better suited to the students' future careers, which matches the Division's goal of increasing student success after college as well. |
| **What assessment evidence supports this proposal?**  |
| Data available at Lane shows that a majority of students place at or below Math 60. If Math 95 were to be the required math course for the Computer Networking program, many of the students would have to take three or more courses to fulfill this requirement. |
| **How do you know there is a demand for this course?**  |
| The Math Division was approached by the Computer Information Technology department to create a course that would meet the needs of students in the Computer Networking program at Lane, with about 60 students per year needing the course. Other students may find it interesting or useful in their college career as well, for example students in other programs under the umbrella of the Computer Information Technology department. |

**Section 3. Curriculum Equity** [**http://www.lanecc.edu/copps**](http://www.lanecc.edu/copps)

**To promote an environment where all learners are encouraged to develop their full potential, this course will support Lane’s Curriculum Equity policy in the following way(s):**

This course will encourage an environment where all learners are encouraged to develop their full potential, because it removes a barrier for many students in completing the Computer Networking program requirements. National studies have shown that developmental math can be a significant barrier to success for many college students, and this is disproportionately true for women, minority groups, and other at-risk populations. By making the math requirement for this program shorter and better suited to the jobs these students are seeking, this course will likely have a positive impact on diversity.

**Section 4. For revised courses only: PREVIOUS Catalog/Course Information:**

Course Number: **MTH 199** Course Title in Banner: **Math for Network Ops** 30 characters maximum)

Full Course Title in print catalog: **Math for Network Operations**

Prerequisites: MTH 020

Co-requisites:

Grade Option: [x]  Graded (with P/NP option) [ ]  Pass/No Pass only

|  |  |  |  |
| --- | --- | --- | --- |
| **Number/Type Credits** | **Term Minimum Contact** | **Term Maximum Contact** | **11-Week Term Contact** |
| 4 Lecture | 40 hours (lecture credits x 10) | 48 hours (lecture credits x 12) | 44 hours (lecture credits x 11) |
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|    Lab |    hours (lab credits x 30) |    hours (lab credits x 36) |    hours (lab credits x 33) |
| 4 **Total credits (sum)** | 40 **Total hours (sum)** | 48 **Total hours (sum)** | 44 **Total hours (sum)** |

**Course Description:**

Satisfies math requirements for students in the Computer Networking program. Topics include understanding different number bases, binary math and logical operators, hexadecimal color representations, basic internet protocol math, hashing and checksum algorithms, and basic cryptography.

What will change? [x] Course Number [ ] Title [ ] Course Description [ ] Credit hours [ ] Contact hours

**Section 5. Support Courses (New Professional/Technical course proposals must complete.)**

Professional/Technical courses are tracked within programs for purposes of Carl Perkins funding and budgetary planning. Indicate all degree or certificate programs for which this course will be required.

|  |  |
| --- | --- |
| Program | Division |
| Computer Networking | Computer Information Technology |
|       |       |

**Section 6. Overlap Courses (New course proposals must complete.)**

While overlap of course materials is not necessarily a flaw, duplication of course materials may lead to inefficient use of college resources. If there is overlap, the faculty of overlapping courses must agree on the extent of overlap and attach a rationale explaining its necessity if it is more then 10%.

Indicate all departments/courses that this course may overlap. Division Dean of existing course enters one of two options at right. Note: N/A is not an option.

Options:

1. No overlap.

2. Approved: overlap is acceptable. Rationale attached.

3. Disapproved: reasons attached.

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| --- | --- | --- | --- | --- | --- |
| Division | Course Number / Title | % Overlap | Option | Division Dean of existing course(Signature required for all options) | Date |
|       |       |       |       |  |       |
|       |       |       |       |  |       |

**Section 7. Qualification to fulfill degree requirements** (complete all relevant forms, available at <http://www.lanecc.edu/currsched/curriculum-forms> and send to Curriculum/Scheduling for the Degree Requirements Review Committee):

[ ]  Form(s) applying for the following degree requirement status have been attached. (Only check this box when forms have been completed and attached.)

**AAOT, ASOT-Bus, OTM:**

[ ]  Arts & Letters

[ ]  Social Sciences

[ ]  Science /Computer Science

[ ]  Mathematics

[ ]  Cultural Literacy Option

(please submit with course syllabus to Michael Samano in Social Science)

**All degrees:**

[ ]  Health/Wellness/Fitness

**AAS, 1-year and 2-year certificates:**

[ ]  Human Relations

**Optional designation:**

[ ]  Sustainability status

**Section 8. Library Impact Statement**

Under accreditation standards, Library consultation is essential for new programs, new courses and for substantively revised courses when the revisions entail any change in library use.

**What assignments will require the use of library and information resources?**

Instructors may sometimes place materials on library reserve, and students may sometimes use library resources when working on course assignments. However, the overall impact will be small, since the course is not expected to have more than 60 students per year, and no assignments will require the use of the library in particular.

Each academic area has a Liaison Librarian <http://www.lanecc.edu/library/services/liaison.htm>. Contact the designated librarian to discuss the library needs of your course. Please allow the librarian at least one week to assess library resources.

**To be completed by Liaison Librarian:**

[x]  Library resources are adequate to support this proposal.

[ ]  Additional resources are needed but can be obtained from current funds.

[ ]  Significant additional Library funds/resources are required to support this proposal.

 Liaison Librarian Date

**Section 9. Divisional Approval** (To be completed by Division Chair and Administrative Assistant)

**Human, Physical, and Financial Resources:**

[ ]  Additional instructional costs (staff, materials, services or facilities) will be incurred to offer this course. Source of funding:

[x]  No additional instructional resources (staff, materials, services or facilities) are needed to offer this course.
Explain:

**Required Certifications:**

[ ]  We have developed minimum course certification standards according to the COPPs procedure “Instructor Qualifications: Credit,” to be filed with ASA upon course approval.

[x]  We have completed faculty certification form(s) for faculty qualified to teach this course, to be filed with ASA and Human Resources upon course approval.

Administrative Assistant/Coordinator Date

**Fees:**

[ ]  We have completed fee rationale and fee request forms to be submitted to ASA upon course approval, in compliance with the COPPs procedure, “Fees: Special”

[x]  No special fees will be required for this course.

**Divisional Recommendation:**

[x]  The Academic Dean and Administrative Assistant have reviewed this course proposal and kept a copy for divisional files.

[x]  Faculty review of this course was completed within the division on 1/30/2014(date).

[x]  Pass [ ]  Do Not Pass

Academic Dean Date

**Section 10. College Approval**

Curriculum Committee Chair Date Executive Dean for Academic Affairs Date

Curriculum Approval Committee hearing:       \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date Vice President for Academic & Date

 Student Affairs