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| **ELEMENT** | **CONTENT** |
| DEPARTMENT | CIS |
| AUTHOR (S) | Peter Chapin |
| COURSE NUMBER | **CIS 3152** |
| COURSE TITLE | **Network Programming** |
| SHORT TITLE | Network Prog |
| COURSE LEVEL | 3000 |
| DATE CREATED |  |
| CHECKED/CHANGED | 6/7/2017 |
| PREREQUISITES | CIS 2151; CIS 2010 or 2025; CIS 2262 or 2271 |
| COREQUISITES |  |
| RESTRICTIONS |  |
| SPECIAL FEES | No |
| CREDITS | 3 |
| HOURS | 3 hours of lecture per week |
| SEMESTER | As required |
| COURSE DESCRIPTION | This is a course in network programming and topics include client/server programming with sockets for TCP and UDP; programming at least one application level protocol such as HTTP or SMTP/MIME; an introduction to character sets; and at least one remote procedure call system (ONC RPC, Ice, etc.) An introduction to XML and the use of XML libraries is also presented. Proper error handling techniques are discussed throughout. |
| SUGGESTED TEXTS | *Unix Network Programming: Volume 1*; W. Richard Stevens, Bill Fenner, and Andrew M. Rudoff |
| OPTIONAL TEXTS |  |
| COURSE OUTCOMES | The successful student will be able to:   1. Write programs that interact with the lower levels of the network protocol stack (e.g., raw sockets and the link layer) 2. Implement an application protocol that uses a datagram transport such as DNS or TFTP (for both IPv4 and IPv6) 3. Implement an application protocol that uses a stream transport such as SMTP or HTTP (for both IPv4 and IPv6) 4. Understand several widely used character sets 5. Write programs that operate at the highest levels of the network protocol stack (e.g., MIME) 6. Use XML to create document types and instance documents and write applications that can do basic manipulations of those documents 7. Write client/server programs that communicate using an RPC protocol 8. Read and understand standards of documents such as RFCs or W3C recommendations well enough to make non-trivial use of the information contained in them |
| COURSE CONTENT | 1. Basic TCP and UDP client/server programming 2. Implementing TFTP 3. Implementing SMTP 4. Raw sockets and data link programming 5. Handling character sets 6. Handling MIME types 7. XML document types and instance documents 8. Processing XML with software 9. RPC |
| LAB/STUDIO OUTCOMES |  |
| LAB/STUDIO CONTENT |  |
| LECTURE CAPACITY | 21 |
| LAB CAPACITY |  |
| GRADED OR P/NP | Graded |
| EVALUATION |  |
| DELIVERY METHOD | ONL |
| ROOM REQUIREMENTS | No room |
| AUTHOR’S NOTES |  |