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Information Technology

FIT3165 Computer Networks

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Unit Information

Outline

- **People involved**
- **Unit objectives**
- **Resources**
- **Unit structure**
- **Tutorials**
- **Assessment**
- **Responsibilities**

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People Involved

Clayton Campus

- **Lecturer**
  - Dr. Abdul Malik Khan
    - > Building 63, 25 Exhibition Walk
    - > Email: Malik.Khan@monash.edu
    - > Consultation time: TBA
- **Tutors**
  - Safi Uddin
  - Rosanna Alam
  - Anit
  - Pasindu Epa

Monash South Africa Campus

- **Lecturer**
  - Dr. Jacobus Pretorius
    - > Building D, Room 2.06
    - > Email: Jaco.Pretorius@monash.edu
    - > Consultation time: TBA
- **Tutors**
  - TBA

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Unit Objectives: Why study information and network security?

- **Students should be able to:**
    - explain the network architecture standards for open systems;
    - describe and apply the ISO reference and Internet models;
    - implement programs using internetworking concepts, IP addressing, IPC and socket-level interface;
    - analyse the fundamentals and technologies of cabled and wireless physical layer;
    - analyse the fundamentals and technologies of cabled and wireless data-link layer;
    - apply and implement the fundamentals and technologies of the network layer, including packet-switching and queueing concepts;
    - analyse designs based on the functions and architectures of cabled and wireless LAN and WAN, including ALOHA and CSMA/CD models;
    - implement system level designs based on LAN architecture for organisational requirements.

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Resources: MUSO

- **Moodle 2**
- **Unit information:**
  - ➢ **You will find the information on Moodle**

- **lecture notes**
- **Tutorials and laboratory exercises**
- **Assignment specifications**
- **Newsgroups/discussion areas**
- **Additional support material**

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Resources: Textbooks and Software

- **Textbook**
  - Behrouz A. Forouzan and Firouz Mosharraf, Computer Networks: A Top-down Approach,1st Edition, 2012 McGraw-Hill.
  - Recommended Reading Behrouz A. Forouzan, "Data Communication and Networking, 4th Edition", McGraw-Hill, 2007. (you can access via Monash Library. You need to use your authcate ID and password to access this resource. http://accessengineeringlibrary.com.ezproxy.lib.monash.edu.au/browse/data-communications-and-networking-fourth-edition

- **Supplementary textbooks**
  - Can be used as additional support material by students
- **Software**

  Additional information, Open/free source tools:
  - Wireshark is a free and open source packet analyzer.
  - C & Java tools for network programming.
  - Cisco Packet Tracer, an innovative network simulation and visualization tool

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Resources: Other Materials

- **Lecture Notes**
  - 12 Study Guides and Lecture Notes
    - >Learning objectives / guided reading
    - >Supporting information for lectures
- **On-line resources on the web**

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Unit Structure: Lecture Topics

Computer Networks:

- Introduction
- Application Layer
- Transport Layer
- Network Layer
- Data Link Layer and Wired Networks
- Wireless Networks and Mobile IP
- Physical Layer and Transmission Media
- Network Management
- Network Security
- Socket-Interface Programming in Java

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Unit schedule

For units with on-campus classes, teaching activities are normally scheduled to start on the hour (teaching will commence on the hour and conclude 10 minutes prior to the scheduled end time).

Week	Activities	Assessment
0	Students should register for tutorials.	No formal assessment or activities are undertaken in week 0
1	LN1: Introduction to Computer Networks, and Protocol layered Architecture, ISO reference and Internet models, explain the network architecture standards & Internet standards.	Tutorials start from Week 2
2	LN2: Application layer, Client-server paradigm, Standard applications, Peer-to-peer paradigm & Socket-interface programming.	
3	LN2: Application layer (continued). LN3:Transport-layer protocols, TCP, UDP, process-to-process communication, addressing, multiplexing, error, flow, and congestion control.	
4	LN3: Transport-layer protocols (continued). LN4: Introduction to Network-layer protocols, Unicast routing, Next generation IP, Network-layer services, Congestion control, Forwarding of IP packets & Network layer addressing, network layer performance.	
5	LN4: Network-layer protocols (continued).	
6	LN5: Data-Link Layer Wired Networks. Architectures of cabled and wireless LAN and WAN, including ALOHA and CSMA/CD models.	
7	LN5: Data-Link Layer (continued).	Assignment 1 due Friday 4:00 PM
8	LN6: Wireless Networks and Mobile IP.	
9	LN6: Wireless Networks and Mobile IP(continued).	
10	LN7: Physical Layer Wired & Wireless Transmission Media.	
11	LN7: Physical Layer Wired & Wireless Transmission Media (continued); LN8:System level designs based on LAN architecture for organisational requirements.	
12	LN9: Socket Programming in Java.	Assignment 2 due Friday, 4:00 PM
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

Assessment summary

Examination (2 hours): 60%; In-semester assessment: 40%

Assessment task	Value	Due date
Weekly Tutorials and Lab exercises	10%	End of each weekly tutorial/laboratory class
Assignment 1	15%	Week 7 Friday 4:00 PM
Assignment 2	15%	Week 12 Friday 4:00 PM
Examination	60%	To be advised

Caulfield Unit Structure: Timetable

- **Lecture: 1 lectures / week**
  - 2 hrs. each lecture

- **Tutorial: 1 tutorials / week**
  - 2 hrs. each tutorials
  - see Allocate+

- **Reading:**
  - Text Book
  - Other resources on the unit page

- **Student Workload**
  - 4 hours Lectures & Tutorial classes each week
  - 12 hours of personal study to satisfy the reading and assessment expectations.

Assessment

- **Non-Exam component**
  - Assignment-1 & 2 : 30% & Weekly tutorials: 10%
  - Hurdle of 16 out of 40

- **Final Exam: 60%**
  - Hurdle of 24 out of 60

- **To pass FIT3165**
  - You must submit assignment-1& 2 and attend tutorials
  - Your marks must average to at least 50
  - You must pass each individual hurdle

Failure to meet a hurdle will result in a maximum mark of 44N

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Assessment: Assignment & Class Test

Assessment task	Value	Due date
Weekly Tutorials and Lab exercises	10%	End of each weekly tutorial/laboratory class
Assignment 1	15%	Week 7 Friday 4:00 PM
Assignment 2	15%	Week 12 Friday 4:00 PM
Examination	60%	To be advised

- **Assignment details will be posted on the web**
- **Late Assign submission ONLY with prior permission and VALID reasons**

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Assessment: Final Exam

- **2 hour closed book examination**
- **60 % of total marks**
- **will test your knowledge in the unit matter outlined in the unit objectives**

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Do you have a disability or long/short term medical condition that impacts on your study?

- To register with the DLU, students must be enrolled in an award course at Monash University and provide relevant, current documentation from a qualified professional
- The Disability Liaison Unit (DLU) provides a range of services to assist students who have a disability or long/short term medical condition

- The DLU can be contacted via email dlu@adm.monash.edu.au or phone 9905 5704
- For further information see www.adm.monash.edu.au/sss/equity-diversity/disability-liaison

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Seek Assistance as a preventative measure

- **Discuss any study difficulties you are experiencing**
  - course leader or lecturer
- **Language and learning online has resources that can help you with study methods, language skills and work presentation to improve your performance. http://www.monash.edu.au/lls/llonline/**
- **Seek assistance from the University Counseling Service if you think personal or other issues may be affecting your level of achievement. http://www.adm.monash.edu.au/community-services/counselling/index.html**
- **Access for additional support or help: Monash University Student Support Services Contact List http://www.infotech.monash.edu.au/resources/student/**

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Next Lecture Topic

- **Lecture Topic 1**
  - Introduction to Computer networks

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