Welcome to

Wireless Networks: INFO 3180

By

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AGENDA

1. Introduction
2. Overview of the Course
3. Assignment & Project
4. Forming Groups
5. Submission Procedure
   1. Moodle
6. Class Recess
7. Attendance
8. Today’s Class: Lecture 1
   1. Introduction to Wireless Communications
   2. Read assigned article

Wireless Communication:

<http://www.wideskills.com/wireless-concepts/wireless-communication-table-contents>

**Tutorial:**

http://etutorials.org/Networking/wn/

1. Today’s Class: Lecture 2
   1. Review
   2. Chapter 2: RF Math
   3. The Rule of 10s and 3s (video)

<https://www.youtube.com/watch?v=VqoUS-ecw4Y>

* 1. What is a Decibel? (Video)

<https://www.youtube.com/watch?v=Dy7V517NfqQ>

* 1. **What Does "dBm" Mean? (video)**

# <https://www.youtube.com/watch?v=2mQKWyBcUg4&t=468s>

* 1. Class Assignment 1

1. Today’s Class: Lecture 3
   1. Review
   2. Chapter 3: Spread Spectrum

[RF and Antenna Basics in 802 11 video](https://www.youtube.com/watch?v=tyr_u8Zfw2U)

[Spread Spectrum Modulation Tutorial URL](https://www.tutorialspoint.com/digital_communication/digital_communication_spread_spectrum_modulation.htm)

* 1. [Spread Spectrum Technology - Video](https://www.youtube.com/watch?v=gLRwDysKesc)
  2. Class Assignment 2

1. Today’s Class: Lecture 4
   1. Review
   2. Chapter 4: Infrastructure Device
   3. [WLAN infrastructure- video](https://www.youtube.com/watch?v=M4KaAvoO24w)
   4. [WIRELESS NETWORKS Networking Basic- video](https://www.youtube.com/watch?v=UxC0P-Ao144)
   5. Class Assignment 3
2. Today’s Class: Lecture 5
   1. Review
   2. Chapter 5: Antenna Basics
   3. [RF and Antenna Basics in 802 11 video](https://www.youtube.com/watch?v=tyr_u8Zfw2U)
   4. Antena - video

<https://www.youtube.com/watch?v=tyr_u8Zfw2U>

* 1. Class Assignment 4

1. Today’s Class: Lecture 6
2. Midterm
3. Today’s Class: Lecture 7
   1. Midterm Review
   2. Wireless Standards
   3. Class Assignment 5
   4. Assignment 3 and Project
4. Today’s Class: Lecture 8
5. 802.11 Architecture
6. Reading: [802.11 Association process explained](https://documentation.meraki.com/MR/WiFi_Basics_and_Best_Practices/802.11_Association_process_explained)
7. Reading: [802.11 Authentication and Association](https://www.vocal.com/networking/802-11-authentication-and-association/)
8. Project
9. Class Assignment 6
10. Today’s Class: Lecture 9
11. Reading: [Difference between SIFS, PIFS, DIFS, EIFS and AIFS](http://www.rfwireless-world.com/Terminology/WLAN-SIFS-vs-PIFS-vs-DIFS-vs-EIFS-vs-AIFS.html)

http://www.rfwirelessworld.com/Terminology/WLAN-SIFS-vs-PIFS-vs-DIFS-vs-EIFS-vs-AIFS.html

1. CSMA/CD Video: [Understanding CSMA/CD and CSMA/CA](https://www.youtube.com/watch?v=k0CHAY6e_sg)

<https://www.youtube.com/watch?v=k0CHAY6e_sg>

1. Video[: Distributed Coordination Function DCF](https://www.youtube.com/watch?v=npRZdyy8VG8)

<https://www.youtube.com/watch?v=npRZdyy8VG8>

1. Video: [Hidden Terminal Problem](https://www.youtube.com/watch?v=K2KMF5dmE2w) https://www.youtube.com/watch?v=K2KMF5dmE2w
2. Today’s Class: Lecture 10
3. Troubleshooting
4. Reading: [Wi-Fi / WLAN Channels, Frequencies, Bands & Bandwidths](http://www.radio-electronics.com/info/wireless/wi-fi/80211-channels-number-frequencies-bandwidth.php)

<http://www.radio-electronics.com/info/wireless/wi-fi/80211-channels-number-frequencies-bandwidth.php>

1. Reading: [How to Find the Best WiFi Channel for 5Ghz Frequency](d.%09https:/www.maketecheasier.com/best-wifi-channel-for-5ghz-frequency/)

<https://www.maketecheasier.com/best-wifi-channel-for-5ghz-frequency/>

1. Video: [5 Common Wi Fi Problems](https://www.youtube.com/watch?v=EblCc1rLHrI)

<https://www.youtube.com/watch?v=EblCc1rLHrI>

1. [Video: Solving WiFi Issues - WiFi Tips and Tricks](https://www.youtube.com/watch?v=cNfCFuh1ukg)

<https://www.youtube.com/watch?v=cNfCFuh1ukg>

1. Class Assignment 8
2. Today’s Class: Lecture 11
3. Reading - [GSM vs CDMA – What’s the difference](https://www.androidauthority.com/gsm-vs-cdma-689328/)

<https://www.androidauthority.com/gsm-vs-cdma-689328/>

1. Video -[CDMA Signal Spreading - The VERY basics of how it's done](https://www.youtube.com/watch?v=XJ81CuujwYE)

<https://www.youtube.com/watch?v=XJ81CuujwYE>

1. Class Assignment 8
2. [Bluetooth 5.0: What’s Different, and Why it Matters URL](https://courses.kpu.ca/mod/url/view.php?id=944499)

<https://www.howtogeek.com/343718/whats-different-in-bluetooth-5.0/>

1. [Bluetooth 5.0: Explained!](https://www.youtube.com/watch?v=0n1x-wxESaM)

https://www.youtube.com/watch?v=0n1x-wxESaM

1. Today’s Class: Lecture 12
2. LTE
3. Reading - [How Does a Mobile Network Work?](https://www.lifewire.com/how-does-a-mobile-network-work-2373338)

<https://www.lifewire.com/how-does-a-mobile-network-work-2373338>

1. [Video - What is LTE, this Tutorial ExplainsLTE](https://www.youtube.com/watch?v=lNQcSgKVhSk)

<https://www.youtube.com/watch?v=lNQcSgKVhSk>

[Video – LTE Architecture](https://www.youtube.com/watch?v=aGRTBA1tYRo)

https://www.youtube.com/watch?v=aGRTBA1tYRo

1. Class Assignment 9