EE6426
Radio Frequency (RF) Circuit Engineering

Course information
After taking EE6426, you will understand the fundamental concepts, basic theory of advanced circuit design and important techniques in radio frequency circuits.
### RF range

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Wavelength</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 30 Hz</td>
<td>$10^5 - 10^4$ km</td>
<td>Extremely low frequency</td>
</tr>
<tr>
<td>30 – 300 Hz</td>
<td>$10^4 - 10^3$ km</td>
<td>Super low frequency</td>
</tr>
<tr>
<td>300 – 3000 Hz</td>
<td>$10^3 - 100$ km</td>
<td>Ultra low frequency</td>
</tr>
<tr>
<td>3 – 30 kHz</td>
<td>100 – 10 km</td>
<td>Very low frequency</td>
</tr>
<tr>
<td>30 – 300 kHz</td>
<td>10 – 1 km</td>
<td>Low frequency</td>
</tr>
<tr>
<td>300 – 3000 kHz</td>
<td>1 km – 100 m</td>
<td>Medium frequency</td>
</tr>
<tr>
<td>3 – 30 MHz</td>
<td>100 – 10 m</td>
<td>High frequency</td>
</tr>
<tr>
<td>30 – 300 MHz</td>
<td>10 – 1 m</td>
<td>Very high frequency</td>
</tr>
<tr>
<td>300 – 3000 MHz</td>
<td>1 m – 10 cm</td>
<td>Ultra high frequency</td>
</tr>
<tr>
<td>3 – 30 GHz</td>
<td>10 – 1 cm</td>
<td>Super high frequency</td>
</tr>
<tr>
<td>30 – 300 GHz</td>
<td>1 cm – 1 mm</td>
<td>Extremely high frequency</td>
</tr>
<tr>
<td>300 – 3000 GHz</td>
<td>1 mm – 0.1 mm</td>
<td>Tremendously high frequency</td>
</tr>
</tbody>
</table>
RF includes huge amounts of applications

- AM broadcasting (MF)
- GMDSS communication (HF)
- FM broadcasting (VHF)
- Microwaves (SHF)
- Satellite communication (SHF)
- UHF TV antenna (UHF)

It also includes more and more RF applications which are all wireless communications......
What are the contents
Four main focuses

1. RF Receiver and Transmitter
2. Large Signal Amplifier
3. Oscillator
4. Non-linear RF Circuits and applications

For more, you can click
http://www.cityu.edu.hk/pg/current/course/EE6426.htm
Learning structures

- Written exam
- Mini-project
- Tutorials
- Lectures
- Your participation
Course intended learning outcomes (CILOs)

1. Design of RF receivers and transmitters
2. Understand the basics of large-signal concept and non-linear operation
3. Design of high power amplifier systems, oscillators and mixers
4. Apply measurement techniques to large signal devices
Assessment Activities

- Tutorial questions, discussion, assignments and mini-projects: 50%
- Written exam: 50%
Who can take EE6426?

- Only for Programme: EE/M, EE/P, MSEIE, PGCNIE, PGCOC, PGCRFAE, PGCWC

- **Prerequisites:** EE5425 Fundamentals of Radio Frequency (RF) Circuit Engineering; or EE6425 Fundamentals of Radio Frequency (RF) Circuit Engineering; or equivalent
For more information:

- http://ieeexplore.ieee.org
- Discuss with the course leader
- Discuss with the Course Examiner
- Discuss with your seniors
See you in EE6426!