



## ECS455 Formula Sheet

ID3											
055	$P_k = \frac{\binom{N}{k} A_k^u}{\sum_{k=0}^m \binom{N}{k} A_k^u} \quad 0 \leq k \leq m \quad c_b = \frac{(N-m)P_m}{\sum_{k=0}^m (N-k)P_k}$										
075	$\bar{X} = \text{DFT}\{\bar{x}\} = \Psi_N \bar{x}, \quad \bar{x} = \text{IDFT}\{\bar{X}\} = \frac{1}{N} \Psi_N^* \bar{X} \quad \underline{y} = \underline{S}\underline{C} + \underline{\eta}$										
077	$P_0 \lambda N \delta = P_1 M \delta \quad \vdots \quad P_1 \lambda (N-1) \delta = P_2 2 M \delta \quad \vdots \quad P_2 \lambda (N-2) \delta = P_3 M \delta$										
217	$\begin{bmatrix} 1 & 2 & 3 \end{bmatrix} * \begin{bmatrix} 4 & 5 & 6 \end{bmatrix} = \begin{bmatrix} 4 & 13 & 28 & 27 & 18 \end{bmatrix}$ $\begin{matrix} & & 1 & 2 & 3 \\ 6 & 5 & 4 & & \\ & 6 & 5 & 4 & \end{matrix} \quad \begin{matrix} 1 \times 4 = 4 \\ 5 \times 1 + 2 \times 4 = 13 \end{matrix}$										
370	$\square \oplus \circ \circ \rightarrow T_n \oplus \frac{e^{j2\pi k t}}{T_s} \quad \int (j\omega) \circ \rightarrow 2\pi s \circ (-\omega) \quad \Psi^{-1} = \Psi^* / N \quad (AB)^T = B^T A^T$										
381	$s(t) = \frac{1}{\sqrt{N}} \sum_{k=0}^{N-1} s_k e^{j \frac{2\pi k t}{T_s}}, \quad 0 \leq t \leq T_s \quad \Rightarrow \quad \text{OFDM}$										
478	$H_2 = \begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix}$										
491											
538	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Auto c</td> <td style="text-align: center;">wH</td> <td style="text-align: center;">g c</td> <td style="text-align: center;">m-code</td> <td></td> </tr> <tr> <td style="text-align: center;">Cross c</td> <td style="text-align: center;">f</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1 2 3</td> <td style="text-align: center;">1 = best.</td> </tr> </table>	Auto c	wH	g c	m-code		Cross c	f	2	1 2 3	1 = best.
Auto c	wH	g c	m-code								
Cross c	f	2	1 2 3	1 = best.							
611	$\text{OVSF} \quad 1 < \begin{matrix} 1,1,1 \\ 1,1,1 \\ 1,1,1 \\ 1,1,1 \end{matrix} \quad c_1 < \begin{matrix} c_{11} \\ c_{12} \\ c_{13} \end{matrix}$										
652	$\text{OFDM} \quad \int_0^{T_s} c_{k_1}(t) c_{k_2}^*(t) dt \quad \int_0^{T_s} e^{j \frac{2\pi(k_1 - k_2)t}{T_s}} dt \quad \begin{matrix} T_s & k_1 = k_2 \\ 0 & \neq \end{matrix}$										
788	$m\text{-seq period} = 2^r - 1, \text{ Total \# runs} = 2^{r-1}$										
934	$s[n] = s(n \frac{T_s}{N}) = \frac{1}{\sqrt{N}} \sum_{k=0}^{N-1} s_k e^{j \frac{2\pi k n}{N}} = \sqrt{N} \text{IDFT}\{s\}[n]$										
977	$\text{CDMA: } \hat{S}_j = \frac{1}{N} \langle \underline{1}, \underline{c}_j \rangle = \frac{1}{N} \underline{1} \underline{c}_j^T, \quad j = [1, N], \quad N = \# \text{ of users}$										
985	$\langle x, y \rangle \equiv \int_{-\infty}^{\infty} x(t) y^*(t) dt = \int_{-\infty}^{\infty} X(f) Y^*(f) df \equiv \langle X, Y \rangle$										
991	$P_0 = \frac{1}{1+A+\frac{A^2}{2}}, \quad P_1 = A P_0, \quad P_2 = \frac{1}{2} A^2 P_0, \quad P_b = \frac{A^c}{c!} / \sum_{k=0}^{\infty} \frac{A^k}{k!}$										

Gambare = ภาพจากหน้า =  $\begin{matrix} \sqrt{v} & \sqrt{v} \\ \sqrt{v} & \sqrt{v} \end{matrix}$   
 ของงาน EC ที่น่าสนใจ