

Assignment I: Runway Orientation

Prasarana Transportasi CEC-611
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Problems:

1. Find the design crosswind component for the airport.
2. Find the optimal runway orientation for the runway (or runways) for the airport using the wind data provided in the enclosed text file in Table. Plot (wind rose) the runway orientation vs. the coverage achieved for every runway orientation at east every 10 degrees.

Azimuth/10	0-3	4-6	7-10	11-16	17-21	22-27	28-33	33-40	41 and over
1	180	378	333	98	4	0	0	0	0
2	180	455	219	58	2	0	0	0	0
3	180	238	195	30	0	0	0	0	0
4	240	217	123	14	2	0	0	0	0
5	390	182	132	14	0	0	0	0	0
6	210	161	126	18	4	0	0	0	0
7	90	245	123	24	0	0	0	0	0
8	90	175	108	16	0	0	0	0	0
9	150	224	96	14	0	0	0	0	0
10	240	322	90	18	0	0	0	0	0
11	360	322	87	10	0	0	0	0	0
12	360	441	123	6	0	0	0	0	0
13	720	588	111	6	0	0	0	0	0
14	930	469	144	8	2	0	0	0	0
15	600	308	147	30	0	0	0	0	0
16	390	189	186	46	0	0	0	0	0
17	150	189	192	118	10	0	0	0	0
18	120	266	246	126	14	7	0	0	0
19	270	427	204	108	22	0	0	0	0
20	240	427	222	104	12	0	0	0	0
21	180	336	213	68	16	4	1	0	0
22	180	238	237	108	34	1	2	0	0
23	150	210	186	116	36	5	1	1	0

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24	90	203	198	110	40	1	1	0	0
25	60	189	201	82	30	6	0	0	0
26	30	133	183	94	8	3	0	0	0
27	240	224	141	94	30	2	1	0	0
28	150	217	141	102	22	2	0	0	0
29	180	231	186	82	12	0	0	0	0
30	180	231	171	90	10	0	0	0	0
31	30	119	108	52	8	0	0	0	0
32	180	196	87	36	4	2	0	0	0
33	120	147	132	38	2	0	0	0	0
34	210	196	102	26	2	0	0	0	0
35	30	273	129	40	2	0	0	0	0
36	390	371	285	90	10	0	0	0	0

3. Jika pesawat B 747-400 memerlukan konsumsi bahan bakar untuk cadangan 1.4 jam dan pemakaian bahan bakar sebesar 24 lbs./mi untuk rata-rata kecepatan tempuh pesawat sebesar 560 mi/h.

- Tentukan berapa jauh jarak tempuh pesawat yang terbang pada kondisi payload maksimum ?
- Buatlah diagram payload vs range.

Tabel : Karakteristik Pesawat B 747-400

Karakteristik Pesawat	B 747-400
Maximum structural takeoff weight	800,000 lbs.
Maximum landing weight	574,000 lbs.
Operating weight empty	396,142 lbs.
Zero fuel weight	535,000 lbs.
Maximum structural Payload	138,900 lbs.