PENSUM I GEF2610 - 2008
Lærebok: Pickard and Emery, "Descriptive Physical Oceanography",
5. utgave eller senere utgaver

Chapter 1. Introduction
Hele leses, 4 sider.

Chapter 2. Ocean Dimensions, Shapes and Bottom Materials
Hele leses, 7 sider.

Chapter 3. Physical Properties of Sea-Water
Fra side 21 og ut avsnitt 3.55 utgår. Resten leses. 19,5 sider.

Chapter 4. Typical Distributions of Water Characteristics in the Oceans
Avsnitt 4.43 og de matematiske formuleringer kreves ikke i sin helhet, men studenten må vite hva begrepet statisk stabilitet innebærer. Resten leses. 28 sider.

Chapter 5. Water, Salt and Heat Budgets of the Oceans
Avsnittene 5.37 og 5.384 utgår. Resten leses. 23 sider. (Numeriske detaljer i ligning (5.2), (5.3) og (5.4) kreves ikke, men de er likevel nyttige for anslagsvise beregninger.)

Chapter 6. Instruments and Methods
Avsnitt 6.255 kreves ikke i sin helhet, men studenten må vite hvilke krefter som balanserer hverandre i en geostrofisk strøm, og hvordan strømretning, trykkraft og Corioliskraft står i forhold til hverandre. Avsnittene 6.256, 6.32, 6.53, 6.544 utgår. Resten leses. 38,5 sider. (Studenten bør ikke henge seg opp i alle tekniske og numeriske detaljer, men heller forsøke å forstå de mere generelle prinsipper.)

Chapter 7. Circulation and Water Masses of the Oceans
Avsnitt 7.12 kreves ikke i sin helhet, men studenten må vite hvilke krefter som balanserer hverandre i en Ekman-spiral, og hvilken vinkel strømretning i overflaten og total Ekmantransport i overflatelaget har i forhold til vindretningen. Avsnittene 7.341, 7.344, 7.353, 7.45 og 7.53 utgår. Detaljer i 7.351, 7.41, 7.42 og 7.43 kreves ikke. I 7.6 og 7.7 er det strømningsmønsteret som er av interesse. Resten leses. 93 sider. (Numeriske detaljer i avsnitt 7.54 kan sløyfes.)

Chapter 8. Coastal Oceanography
Avsnitt 8.5 utgår. Resten leses. 10 sider.

Chapter 9. Some Directions for Future Work
Utgår.

Totalt ca. 223 sider.

Kompendium: Odd H. Sælen og Eyvind Aas, "Forelesningsnotater i fysisk oseanografi - GF 100", 1984. Institutt for geofysikk. 124 sider.

Kap. 1. Havenes utstrekning, dybder etc.
Tilsvarer Chapter 2 hos P&E. 9 sider.

Kap. 2. Kjemisk sammensetning
Tilsvarer Chapter 3.4, 4.5 og 4.62. 7 sider.

Kap. 3. Fysiske egenskaper
Tilsvarer Chapter 3. 19 sider.

Kap.4. Atmosfærens innvirkning
Pensum. 8 sider.

Kap. 5. Fordeling av T, S og ρ
Tilsvarer Chapter 4. 8 sider.

Kap. 6. Likninger for bevegelse
Pensum, men utledning av likn. 6.7 går ut. Likeledes går likn. 6.12-6.15 ut. Deler av dette tilsvarer Chapter 6.255-6.256 hos P&E. 17 sider.

Kap. 7. Overflatestrøm, oppvelling og vertikalsirkulasjon
Hele er pensum. Tilsvarer Chapter 7, men noe er nytt. 25 sider.

Kap. 8. Bølger
Pensum. 8 sider.

Kap. 9. Tidevann
Pensum. 10 sider.

Kap. 10. Fjorder og estuarer
Tilsvarer tildels Chapter 8, men har mer lokalt stoff. 10 sider.

Kap. 11. Is i havet
Tilsvarer Chapter 7.54. 3 sider.

Totalt ca. 124 sider.

SYLLABUS IN GEF2610, 2008
Set book: Pickard and Emery, "Descriptive Physical Oceanography", 5th edition or later editions

Chapter 1. Introduction
The entire chapter is prescribed, 4 pages. This chapter contains very useful and less useful background information. The student should try to separate out the useful parts.

Chapter 2. Ocean Dimensions, Shapes and Bottom Materials
The entire chapter is prescribed, 7 pages.

Chapter 3. Physical Properties of Sea-Water
The text from page 21 including section 3.55 is omitted. The rest is prescribed. 19.5 pages. (The chapter contains a lot of details. Not all of them need to be memorized, but rather their qualitative physical implications. For instance, the details of the equation for the speed of sound on page 26 will not be required, but the equation shows that the speed increases with increasing *t*, *S* and *D*, and this is the important result.)

Chapter 4. Typical Distributions of Water Characteristics in the Oceans
The entire section 4.43 and the mathematical formulas are not required, but the student should know the meaning of the concept of static stability. The rest is prescribed. 28 pages.

Chapter 5. Water, Salt and Heat Budgets of the Oceans
The sections 5.37 and 5.384 can be omitted. The rest is prescribed, 23 pages. (The numerical details of equations (5.2), (5.3) and (5.4) are not required, but the equations are useful for estimates.)

Chapter 6. Instruments and Methods
The entire section 6.255 is not required, but the student should know the forces balancing each other in a geostrophic current, and know the angles between current direction, pressure force and Coriolis force. The sections 6.256, 6.32, 6.53 and 6.544 are omitted. The rest is prescribed, 38.5 pages. (The student should not dwell on all technical and numerical details, but try to understand the more general principles.)

Chapter 7. Circulation and Water Masses of the Oceans
The entire section 7.12 is not required, but the student should know the forces balancing each other in an Ekman spiral, and know the angles between the wind direction, the surface velocity, and the total Ekman transport in the surface layer. The sections 7.341, 7.344, 7.353, 7.42, 7.45, and 7.53 are omitted. Details in 7.351, 7.41, 7.42 and 7.43 are not required. In 7.6 and 7.7 the current patterns are of interest. The rest is prescribed, 93 pages. (Numerical details in section 7.54 can be omitted.)

Chapter 8. Coastal Oceanography
Section 8.5 is omitted. The rest is prescribed. 10 pages.

Chapter 9. Some Directions for Future Work
Omitted.
The total syllabus for this book contains about 223 pages.

Notes: Odd H. Sælen and Eyvind Aas, "Lecture Notes in Physical Oceanography", 1984. 130 pages.

Chapter 1 Extent of the Oceans and their Divisions
Corresponds to Chapter 2 in P&E. 9 pages.

Chapter 2 Chemical Composition of Seawater
Corresponds to Chapter 3.4, 4.5 and 4.62 in P&E. 7 pages.

Chapter 3 Physical Properties of Seawater
Corresponds to Chapter 3 in P&E. 19 pages.

Chapter 4 Influence of the Atmosphere on the Sea
All is syllabus. 8 pages.

Chapter 5 Distribution of *T, S* and ρ
Corresponds to Chapter 4 in P&E. 8 pages.

Chapter 6 Equations of Motion
Syllabus, but the derivation of equation 6.7 is not required. Similarly the equations 6.12-6.15 are omitted. Parts of this chapter correspond to Chapter 6.255-6.256 in P&E. 17 pages.

Chapter 7 Surface Currents - Upwelling - Vertical Circulation
All is syllabus. Corresponds to Chapter 7 in P&E, but here is additional information. 25 pages.

Chapter 8 Waves
All is syllabus. 8 pages.

Chapter 9 Tides
All is syllabus. 10 pages.

Chapter 10 Fjords and estuaries
Corresponds in parts to Chapter 8 in P&E, but there is more information about Norwegian conditions. 10 pages.

Chapter 11 Ice in the Sea
Corresponds to Chapter 7.54 in P&E. 3 pages.

Total syllabus is 124 pages.