***Calendar***

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| **Week #** | **Topics** | **Details** |
| **1** | **Introduction to phase transformation** |  |
| **2** | **Equilibrium/ Single component system/ Binary solutions** | **Ch. 1. 1.1 - 1.3** |
| **3** | **Binary phase diagram** | **Ch. 1. 1.4, 1.5** |
| **4** | **Ternary phase diagram** | **Ch. 1. 1.6, 1.7** |
| **5** | **Atomic mechanism of diffusion/ Interstitial diffusion** | **Ch. 2. 2.1, 2.2** |
| **6** | **Substitutional diffusion/ Atomic mobility** | **Ch. 2. 2.3, 2.4** |
| **7** | **Diffusion in alloys** | **Ch. 2. 2.5 - 2.8** |
| **8** | **Interfacial free energy/ Solid/vapor interfaces/ Mid-term exam** | **Ch. 3. 3.1, 3.2** |
| **9** | **Boundaries in single-phase solids/ Interphase interfaces in solids** | **Ch. 3. 3.3, 3.4** |
| **10** | **Interface migration/ Nucleation in pure metals** | **Ch. 4. 4.1** |
| **11** | **Growth of a pure solid/ Alloy solidification** | **Ch. 4. 4.2, 4.3** |
| **12** | **Solidification of ingots and casting** | **Ch. 4. 4.4** |
| **13** | **Nucleation/ Precipitate growth/ Precipitation in age-hardening alloys** | **Ch. 5. 5.1 - 5.5** |
| **14** | **Various diffusional transformation in solids** | **Ch. 5. 5.6 - 5.10** |
| **15** | **Diffusionless transformation – Martensite transformation** | **Ch. 6** |
| **16** | **Final exam** |  |