## COS30002 Artificial Intelligence for Games

| Week | Lecture | Lab / Spike / Notes | Tests, Options, Notes |
|---|---|---|---|
| 1 | • Introduction to Unit & ILO's<br>• Basic Game Loops<br>• Simple Finite State Machines<br>• Basic Agent and Bot AI Architecture | 01 Lab – FSM & Python | |
| 2 | • Goal Oriented Behaviour<br>• Balance vs Bias vs Fun | 02 Lab – Tic Tac Toe & Software Architecture | |
| 3 | • Strategy and Tactics | 03 Spike – Goal Oriented Behaviour (GOB) | |
| 4 | • Movement & Autonomous Steering<br>- seek, flee, arrive, chase, follow … | 04 Lab – Planet Wars | Strategy vs Tactic game review |
| 5 | • Emergent Group Behaviours<br>- alignment, cohesion,  separation | 05 Lab – Steering #1 | *Lab Test 1* |
| 6 | • Tactical Analysis<br>- influence maps, hiding …<br>• Predictive Models<br>- targeting, estimation, planning … | 06 Lab – Steering #2<br>07 Spike – Emergent Group Behaviour | |
| 7 | • Graphs, Paths and Search #1 | 08 Spike – Tactical Steering (Hiding)<br>09 Spike – Agent Marksmanship | AirHockey, Battleships, Checkers … |
| 8 | • Graphs, Paths and Search #2 | 10 Lab – Graphs, Paths and Search<br>11 Spike – Tactical Analysis with PlanetWars | Fog-of-War, Deception … |
| 9 | • Hierarchical State Machines<br>• Actions, Stacks and Trees | 12 Spike – Graphs and Search<br>13 Spike – Goal Oriented Action Planning (GOAP) | Tower defense, weapon match |
| 10 | • Exotic Ideas & Biomimicry | 14 Spike – Solder on Patrol (Hierarchical FSM) | RPG composition, dribble & surge |
| 11 | Reviews and Case Studies | | *Lab Test 2* |
| 12 | Reviews and Case Studies | | |
| 13 | Exam Period | | |
| 14 | - Submit P/C portfolios | | P/C Due |
| 15 | - Interview for D/HD portfolios | | D/HD Due |