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| Sesi Akademik  *Academic Session* | 2022/2023 |
| Semester/Penggal  *Semester/Term* | 2 |
| Kod Kursus  *Course Code* | WIX3001 |
| Tajuk Kursus  *Course Title* | Pengkomputeran Lembut  *Soft Computing* |
| Bahasa Pengantar  *Medium of Instruction* | Bahasa Inggeris |
| Rujukan Utama  *Main Reference* | 1. Principles of Soft Computing, S. N. Sivanandam & S. N. Deepa, Wiley – India, 3rd edition, 2018. 2. Soft Computing Fundamentals, Techniques and Applications, Saroj Kaushik, Sunita Tiwari, McGraw Hill, 2018 3. Neural Networks, Fuzzy Logic and Genetic Algorithms: Synthesis & Applications, S. Rajasekaran & G. A. Vijayalakshmi Pai, PHI Learning Pvt. Ltd., 2016. |
| Strategi Pembelajaran  *Learning Strategies* | |  | | --- | | Kuliah, Tutorial  *Lecture, Tutorial* | |
| Masa Pembelajaran Pelajar  *Student Learning Time* | Bersemuka / *Face to face* : 54  Masa Persediaan Pelajar / *Student Preparation Time*: 54  Penilaian/Assessment : 12 |
| Kemahiran Boleh Pindah  Transferable Skills | Kemahiran Menggunakan Alatan Pengkomputeran Lembut  *Skills applying soft computing tools* |
| Pensyarah / *Lecturer*  Bilik / *Room*  Telefon/e-mel  *Telephone/e-mail* | Dr Liew Wei Shiung  B-2-22  0199659806 / [liew.wei.shiung@um.edu.my](mailto:liew.wei.shiung@um.edu.my) |
| Sesi Kuliah / *Lecture Session:*  Hari/Masa / *Day/Time*  Tempat / *Venue* | Selasa, 4pm – 6pm  *Tuesday, 4pm – 6pm*  DK1 |
| Sesi Tutorial/Amali:  *Tutorial/Practical Session:*  Hari/Masa / *Day/Time*  Tempat / *Venue* | Khamis, 11am – 12pm, 12pm – 1pm, 3pm – 4pm  *Thursday, 11am – 12pm, 12pm – 1pm, 3pm – 4pm*  MM4 |
| Perincian Pemberatan Penilaian  *Detail of Assessment Weightage* | |  | | --- | | Penilaian Sumatif Alternatif/ *Alternative Summative Assessment (50%)*:  Peperiksaan / *Exam* (50%) (Minggu 17-18 / *Week 17-18*)  Penilaian Berterusan / *Continuous Assessment* :  Tutorial/ *Online Test* and Tutorial (30%) (Setiap minggu; *Every week*)  Tugasan / *Assignment* (20%) (Minggu 13; *Week 13*) | |

**Jadual Pengajaran / *Teaching Schedule***

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| Minggu  *Week* | Topik & Aktiviti  *Topic & Activities* | Rujukan  *References* |
| 1 | Kuliah 1: Pengenalan Kepada Kursus Pengkomputeran Lembut / *Introduction to Soft Computing Course*  Activities: F2F Lecture (2 hours) | Pro Forma dan maklumat kursus  *Course proforma and course information*  Buku Rujukan / *Reference Book* 1  Nota Kuliah / *Lecture Note* |
| 2 | Kuliah 2: Pengenalan Kepada Rangkaian Neural / *Introduction to Neural Networks*  Tutorial  Activities: F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 3  Nota Kuliah / *Lecture Note* |
| 3 | Kuliah 3: MLP dan BP (Rambatan Belakang) / *Multi-layer Perceptron and Backpropagation*  Tutorial  Activities: F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 3  Nota Kuliah / *Lecture Note* |
| 4 | Kuliah 4: Rangkaian Neural Terselia dan Tidak Terselia / *Supervised and Unsupervised Neural Networks*  Tutorial  Activities: : F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 1  Nota Kuliah / *Lecture Note* |
| 5 | Kuliah 5: Pengenalan Kepada Algoritma Genetic / *Introduction to Genetic Algorithms*  Tutorial  Activities: F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 3  Nota Kuliah / *Lecture Note* |
| 6 | Kuliah 6: Teknik-Teknik Pengoptimuman / *Optimization Techniques*  Summative assessment 1  Tutorial  Activities: : F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 1  Nota Kuliah / *Lecture Note* |
| 7 | Kuliah 7: Prinsip-Prinsip Algoritma Genetik dan Model Hybrid / *Principles of Genetic Algorithms and Hybrid Models*  Tutorial  Activities: F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 1  Nota Kuliah / *Lecture Note* |
| 8 | Kuliah 8: Pengenalan Kepada Logik Kabur / *Introduction to Fuzzy Logic*  ; Sistem Kawalan Neuro Kabur  Tutorial  Activities: : F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 2  Nota Kuliah / *Lecture Note* |
| 9 | Kuliah 9: Pengaburan dan Penyahkaburan / *Fuzzification and Defuzzification*  Tutorial  Activities: F2F Lecture (2 hours), F2F tutorial(1 hour) | Buku Rujukan / *Reference Book* 2  Nota Kuliah / *Lecture Note* |
| 10 | Kuliah 10: Pengklasifikasi Kabur / *Fuzzy Classification*  Ujian online  Tutorial  Activities: : F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 2  Nota Kuliah / *Lecture Note* |
| 11 | Kuliah 11: Neuro Kabur Berdasarkan Pengklasifikasi / *Neurofuzzy-based Classification*  Tutorial  Activities: F2F Lecture online (2 hours), F2F hybrid tutorial (1 hour) | Buku Rujukan / *Reference Book* 2  Nota Kuliah / *Lecture Note* |
| 12 | Kuliah 12: Aplikasi Pengkomputeran Lembut / *Soft Computing Applications*  Summative assessment 2  Tutorial  Activities: : F2F Lecture (2 hours), F2F tutorial (1 hour) | Buku Rujukan / *Reference Book* 2  Nota Kuliah / *Lecture Note* |
| 13 | Kuliah 13: Kajian Aplikasi Pengkomputeran Lembut / *Soft Computing Application Studies*  Penghantaran Laporan Tugasan  Tutorial  Activities: F2F Lecture online (2 hours), F2F hybrid (1 hour) | Buku Rujukan / *Reference Book* 3  Nota Kuliah / *Lecture Note* |
| 14 | Kuliah 14: Penggulung Pengkomputeran Lembut / *Concluding Soft Computing*  Tutorial  Activities: F2F Lecture online (2 hours), F2F hybrid (1 hour) | Buku Rujukan / *Reference Book* 2  Nota Kuliah / *Lecture Note* |

\*Subject to changes