Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to Computational Intelligent topics fundamental concepts.
Week 2, 4	Neural Networks (NNs) • Introduction to NN • Supervised, and unsupervised learning, • NN training algorithms, training rules, Back propagation algorithm Applications of NNs.
Week 5-7	Fuzzy Logic (FL) • Introduction to FL • Classical and fuzzy sets: Overview of classical sets • Membership function • Fuzzy rule generation. • Operations on Fuzzy Sets: Compliment, Intersections, Unions, Combinations of Operations Fuzzy Arithmetic, Linguistic Variables, Arithmetic Operations. • Applications of FL.
Week 8 10	Genetic Algorithms (GAs) • Introduction to GAs • Genetic Operators and Parameters • GAs in problem solving • Theoretical foundations of genetic algorithms, implementation issues. • Applications of GAs
Week 11-13	Swarm Intelligence • Particle Swarm Optimization (PSO). • Overview of Ant Colony Algorithm, and Bee Colony Algorithm.
Week 14	Hybridization of CI Algorithms. Applications of Hybrid CI algorithms
Week 15	The preparatory week before the final exam

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Introduction to Python for AI
Week 2-4	Applying python of same of NN applications
Week 5-7	Applying python of same of Fuzzy applications

Week 8-10	Applying python of same of GAs applications
Week 11-13	Applying python of same of Swarm Intelligent applications
Week 14,15	Applying python of same of Hybridization of CI Algorithms applications

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	5. James M. Keller et al.," Fundamentals of Computational Intelligence: Neural Networks, Fuzzy Systems, and Evolutionary Computation", Wiley-IEEE Press, 2016. 6. Jiangjun Tang et al. "Simulation and Computational Red Teaming for Problem Solving", ch12: Computational Intelligence, Wiley-IEEE Press, pp. 219 – 240, 2020. 7. Jan Peters, "Computational Intelligence: Principles, Techniques and Applications", Computer Journal, 2007. 8. Mircea Eremia et al.," Advanced Solutions in Power Systems: HVDC, FACTS, and Artificial Intelligence', ch17: Fuzzy Systems, Wiley-IEEE Press, pp. 785 - 818, 2016.	Yes
Recommended Texts		No
Websites		

Group	Grade	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	(45-49)	More work is required, but credit awarded
	F – Fail	(0-44)	A considerable amount of work required