LESSON PLAN
NAME OF FACULTY : Harpal Singh Kalra
DISCIPLINE: MECHATRONICS
SEMESTER:7TH
SUBJECT: System Engineering (MT 403)

LESSON PLAN DURATION: 15 WEEKS (FROM JULY, 2018 TO DEC, 2018)
WORK LOAD (LECTURE)PER WEEK (IN HOURS) : 3 LECTURE

| WEEK | THEORY | |
	LEC. DAY	TOPIC(INCLUDING ASSIGNMENT/TEST)
1ST	I	Introduction to Advanced Manufacturing Technology and Processes and their use in practical life
	II	Overview to entire syllabus
	III	System, its objectives, quality, optimization and reliability
2ND	I	different types of problems: Importance, value, timing, accountability
	II	Organizational structure in the systems with its definition and environment
	III	multi-objective analysis: Multi-Objective Decision Analysis (MODA) and trade-offs
3RD	I	Problem discussion of Unit I
	II	**Test of Unit I**
	III	Multidisciplinary Design Optimization (MDO), Trade space Exploration
4TH	I	Design structure matrices, System Dynamics
	II	parameters for optimization of system
	III	planning and analysis with mathematical optimization techniques
5TH	I	**Problems discussion**
	II	simulation techniques to understand system modeling using Monte Carlo Simulation Method
	III	Numericals on Monte Carlo method
6TH	I	Practice of Monte Carlo method
	II	**Problems discussion**
	III	**Test of Unit II**
7TH	I	Introduction of Shortest path problem including Project Evaluation and Review Technique / Critical Path Method
	II	Method elaboration of Shortest path problem including Project Evaluation and Review Technique / Critical Path Method
	III	Numerical on Shortest path problem including Project Evaluation and Review Technique / Critical Path Method
8TH	I	Practice of numerical on Shortest path problem including Project Evaluation and Review Technique / Critical Path Method
	II	Short test on Shortest path problem including Project Evaluation and Review Technique / Critical Path Method

	III	Introduction of Allocation of scarce resources: Assignment using Hungarian Method
9TH	I	Numerical on Allocation of scarce resources: Assignment using Hungarian Method
	II	Practice of Numerical of Allocation of scarce resources: Assignment using Hungarian Method
	III	Introduction of Decision analysis with the help of decision trees
10TH	I	Numerical of Decision analysis with the help of decision trees
	II	Practice of Numerical of Decision analysis with the help of decision trees
	III	Introduction of Dynamic programming and numerical on Dynamic programming
11TH	I	Numerical of Dynamic programming and numerical on Dynamic programming
	II	Practice of Dynamic programming and numerical on Dynamic programming
	III	**Test of Unit III**
12TH	I	Advanced problems of Project Evaluation and Review Technique/Critical Path Method
	II	Advanced problems of Project Evaluation and Review Technique/Critical Path Method
	III	IDEF and IDEF0-14 techniques,
13TH	I	different dimensions of quality of the system and its assurance with control charts: − R and X -charts and standards
	II	TQM with its stages: inspection, quality control, quality assurance
	III	TQM and Taguchi methods, reliabilities of the system in context with design and analysis.
14TH	I	Reliability failure-terminated test
	II	Reliability time-terminated test
	III	Reliability sequential test.
15TH	I	Problem discussion
	II	**Test of Unit IV**
	III	**Final problem discussion**