DEPARTMENT OF PRODUCTION ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Programme and specialization	**M Tech Industrial Engineering and Management**		
Course Title	**Modeling and Simulation**		
Course Code	**PR 654**	**No. of Credits**	**03**
Pre-requisite subject(s)	**REFER Curriculum**		
Session	**Jan 2019**	**Section**	
Name of Faculty	**Dr S Kumanan**	**Department**	**Production**
Email	**kumanan@nitt.edu**	**Telephone No.**	**0431 2503507**
Course Type	/ **Core course**	☐ **Elective course**	
Syllabus (as approved in BoS) COURSE Objectives and Outcomes			
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COURSE OVERVIEW

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COURSE TEACHING AND LEARNING ACTIVITIES (Refer Enclosed)

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week	Duration	% Weightage
1	Cycle Test I		1 hour	15
2	Cycle Test ii		1 hour	15
3	Class Assignment	Every Week		20
CPA	Compensation Assessment*		1 hour	--
4	Final Assessment *			50

COURSE EXIT SURVEY FEED BACK FORM

MODE OF CORRESPONDENCE Class and office in person
COMPENSATION ASSESSMENT POLICY Only on Medical Grounds with prior intimation

ATTENDANCE POLICY **As Per Institute Norms**

Delivery of Contents: Chalk and Talk, PPTs, Video presentations, Design tutorials

Contact Classes (Theory and Tutorials)

Lesson 1 Introduction to systems and modelling

Lesson 2 Discrete and continuous system - Monte Carlo

Lesson 3 Simulation. Simulation of Single Server Queuing System

Lesson 4 Simulation of manufacturing shop Simulation of Inventory System

Lesson 5 Random number generation, properties - Generation of Pseudo Random Numbers

Lesson 6 Tests for Random Numbers

Lesson 7 Random variates -Inverse Transform Technique –Direct Transform Techniques

Lesson 8 Convolution Method Acceptance Rejection – Routines for Random Variate Generation

Lesson 9 Testing -Analysis of simulation data-Input modelling

Lesson 10 Verification and validation of simulation models – output analysis for a single model.

Lesson 11 Simulation languages and packages

Lesson 12 Case studies in WITNESS; FLEXSIM, ARENA, SIMQUICK

Lesson 13 Simulation based optimization-Modelling and Simulation with Petrinets

Lesson 14 Case studies in manufacturing systems

REFERENCES

1. Jerry Banks & John S.Carson, Barry L Nelson, “Discrete event system simulation” ,Prentice Hall
2. Law A.M, “Simulation Modelling and Analysis”, Tata Mc Graw Hill
3. Narsingh Deo, “System Simulation with Digital Computer”, Prentice H
4. Geoffrey Jordon, “System Simulation”, Prentice hall India Ltd

Faculty PAC Chairman HOD