NATIONAL INSTITUTE OF TECHNOLOGY TIRUCHIRAPPALLI

DEPARTMENT OF MATHEMATICS

COURSE PLAN – PART I			
Name of the programme and specialization	**M.Sc., Mathematics**		
Course Title	**Statistical Computing - Laboratory**		
Course Code	**MA712**	**No. of Credits**	**02**
Course Code of Pre-requisite subject(s)	**NIL**		
Session	**January 2021**	**Section (if, applicable)**	**-**
Name of Faculty	**Dr. P.Savitha**	**Department**	**Mathematics**
Email	**savitha@nitt.edu**	**Telephone No.**	**7639325777**
Name of Course Coordinator(s) (if, applicable)	-		
E-mail	-	**Telephone No.**	-
Course Type	[v] **Core course**	[ ] **Elective course**	

Syllabus (approved in BoS)

Overview of R, R data types and objects, reading and writing data, Control structures, functions, scoping rules, dates and times, Loop functions, debugging tools, Simulation, code profiling.

ESSENTIAL READINGS : (Textbooks, reference books etc.)

1. Kun Ren, Learning R Programming, Packt Publishing Ltd, 2016.
2. Colin Gillespie and Robin Lovelace, Efficient R Programming: A Practical Guide to Smarter Programming, "O'Reilly Media, Inc.", 2017.

COURSE OBJECTIVES

This course makes the student to

1. learn statistical software and perform a number of statistical tests using R.
2. use built-in function to construct correlation and regression of given data.
3. perform statistical analysis over the large data.

COURSE OUTCOMES (CO)	
Course Outcomes	**Aligned Programme Outcomes (PO)**
On completion of this course students will be able to	
1.find statistical parameters(mean, median,..) for given lager data	(i) progress the critical analysis and problem solving skills required for R & D organization and industry. (ii) engage independent and lifelong learning with a high level of enthusiasm and commitment to improve knowledge and competence continuously. (iii) contribute significantly in academics through teaching and research.
2. find correlation coefficient between two variables,	
3. find regression line & regression curve for large data	
4.present graphical representation and analyze the data	

COURSE PLAN – PART II

COURSE OVERVIEW

This course covers practical issues in statistical computing which includes programming in R, reading data into R, accessing R packages, writing R functions, debugging and profiling R code.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1.	1st , 2nd & 3rd week	Introducing R Basic Objects – Functions –Data types - Testing programs using Control structures-loop functions.	Online –MS Teams
2.	4th , 5th & 6th week	Formatting Dates and Times – Parsing text as Date/ Time - Reading and Writing Data.	Online –MS Teams
3.	7th Week	**Assessment – 1**	

4.	7th & 8th week	Visualizing Data using ggplot2: Creating scatter / line plots : Creating bar /pie charts –Analyzing Data : Fitting a regression tree Simulation of Data.	Online –MS Teams
5.	9th, 10th & 11th week	Computing Central Tendency (Mean, Median, Mode), Covariance and Correlation using statistical functions ; apply –family functions.	Online –MS Teams
6.	12th Week	**Assessment – 2**	
7.	13th week	**Compensation Assessment**	
7.	13th & 14th Week	Understanding lexical scoping – debugging tools – profiling code with Rprof; profvis.	Online –MS Teams
8.	15th Week	**Assessment-5 (End Semester Exam)**	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week / Date	Duration	% Weightage
1.	Assessment - 1	7th Week	1.5 hours	25%
2.	Assessment - 2	12th Week	1.5 hours	25%
3.	Assessment - 3 (Assignment1)	6th week	-	10%
4.	Assessment-4 (Assignment2)	11th week	-	10%
CPA	Compensation Assessment	13th Week	1.5 hours	25%
5.	Assessment-5 (End Semester Exam)	15th Week	2 hours	30%

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

1. Students can contact the faculty (with prior appointment) at any stage in the course duration in case he/she finds difficulty in understanding the topic.

2. Feedback form will be issued to students to express their comments about the course after completing the syllabus. Students are requested to give genuine feedback about the course.

3. Student knowledge about the topic covered in this course will be judged through marks obtained in examination.

COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)

MODE OF CORRESPONDENCE (email / phone etc)

Students can meet the course faculty by fixing appointment through E-mail (savitha@nitt.edu) between 9:30 am to 5:00 pm from Monday to Friday.

COMPENSATION ASSESSMENT POLICY

1. Students who have missed the assessment-1 or assessment-2 or both due to any medical emergencies / On Duty **can only** register for compensatory assessment which shall be conducted soon after the completion of the assessment 2 and before the regular semester examination. Other students were strictly **NOT allowed** to register for compensation assessment.

2. The compensation assessment shall be conducted for 25 marks comprising the syllabus of both assessment 1 and assessment 2.

3. Students should submit assignments before last date of submission. In case students fail to submit their assignments, he/she will get zero mark for that particular assignment.

4. The Institute follows relative grading with flexibility given to class committee to decide the mark ranges for grades. All assessment of a course will be done on the basis of marks.

5. A minimum of 30% should be scored in the final assessment (for all courses) for a pass. The passing minimum for all the courses shall be the maximum of 35% or Class Average/2.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- **At least 75% attendance in each course is mandatory.**
- **A maximum of 10% shall be allowed under On Duty (OD) category.**
- Students with **less than 65% of attendance** shall be prevented from writing the final assessment and **shall be awarded 'V' grade.**

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office

The above policy against academic dishonesty shall be applicable for all the programmes.

FOR APPROVAL

Dr. P. Savitha	Dr. P. Saikrishnan	Dr.V.Lakshmana Gomathi Nayagam
Course Faculty	**CC-Chairperson**	**HOD**

25/1/2021

27/01/2021