SRI BHARATHI

ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Kaikkurichi, Pudukkottai -622 303

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NAAC DOCUMENTS

Quality Indicator Frame Work

Criterion – 1
CURRICULAR ASPECTS

Submitted by

IQAC
Internal Quality Assurance Cell

Sri Bharathi Engineering College for Women

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Criterion 1	Curricular Aspects	100

1.1 Curricular Planning and Implementation(20)

1.1.1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

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13	Internal Assessment Schedule
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16	Cycle Test Sample Answer Sheet
17	Cycle Test Co Based Mark Entry
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19	Retest Schedule
20	Retest Sample Question Paper
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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India
DEPARTMENT OF SCIENCE AND HUMANITIES

PREFACE OF THE COURSE FILE

Batch : **2019-2023**

Academic Year : **2019-2020 / ODD**

Program : **COMPUTER SCIENCE AND ENGINEERING**

Year & Semester : **1ˢᵗ Year / 1ˢᵗ Semester / 'A' Section**

Course Code : **MA8151**   NBA Course Code: **C102**

Name of the Course : **ENGINEERING MATHEMATICS-I**

Faculty in-charge : **Ms.R.DIVYA,AP/MATHS**

Signature of the Faculty incharge

Dr **S.THILAGAVATHI** M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

HoD / S&H

HOD / S&H
SRI BHARATHI ENGINEERING
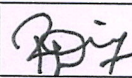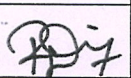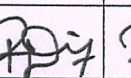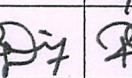COLLEGE FOR WOMEN
KAIKKURICHI
PUDUKKOTTAI - 622 303.
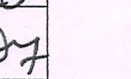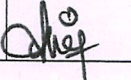
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DEPARTMENT OF SCIENCE AND HUMANITIES

REVIEW OF COURSE FILE

(To be pasted on the inner side of the file-backside).(#-State Yes/No.)

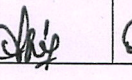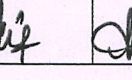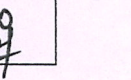| S.No	Details Date:	R-I-*	R-II- *&	R-III- *&	R-IV- *&$	R-V- *&$@
1.	Preface of the course file	Yes				
2.	Vision, Mission, PEOs, POs, PSOs, Blooms taxonomy	Yes				
3.	Subject handlers of yesteryears					
4.	Timetable/Workload of the staff – Distribution of teaching load – Roles and Responsibilities	Yes				
5.	Syllabus signed by staff & HoD	Yes				
6.	Lecture Schedule signed by staff & HoD	Yes				
7.	Course Committee meeting circular and minutes	Yes				
8.	Identification of Curricular gap and Content Beyond the syllabus	Yes				
9.	Self-study topics	Yes				
10.	Previous AU Question papers	Yes				
11.	Unit wise Q&A and Objective type questions	Yes				
12.	Unit wise course material	Yes				
13.	Assignment question paper with sample answer sheets and mark entry		Yes			
14.	Tutorial question paper with key and mark entry		Yes			
15.	Class test/IA test Q Paper with Key, sample answer papers and mark entry		Yes			
16.	IA Test- result analysis-CAP-evidence-root cause analysis.		Yes			
17.	Retest –Q paper-Attendance-marks		Yes			
18.	AU Web portal entry sheet		Yes			
19.	Very poor performance in first two tests-action taken.-communication to parents-evidence					
20.	Absence for two tests-action taken-communication to parents-evidence.					
21.	Indiscipline of student reported, if any					
22.	Special class/coaching class/remedial class/attendance-CAP					
23.	Conduct of Seminar, Quizzes - proof					
24.	Content beyond the syllabus - proof				Yes	
25.	Student feedback on faculty				Yes	
26.	Course end survey					
27.	Internal Assessment sheet				Yes	
28.	AU question paper with students feedback					
29.	Discrepancy of the question paper and correspondence, if any					
30.	AU result analysis-Details of arrear students.					
31.	AU grade sheet					Yes
32.	CO – PO & PSO attainment sheet					Yes
	Signature of Course handling faculty	RDi7	RDi7	RDi7	RDi7	RDi7
	Signature of HoD/ S&H					

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DEPARTMENT OF SCIENCE AND HUMANITIES

ACADEMIC YEAR (2019 – 2020) -ODD SEMESTER

INDIVIDUAL STAFF WORKLOAD

S. NO	STAFF NAME	SUBJECT CODE & NAME	YEAR & DEPT	NO OF HOURS	TOTAL HOURS
1	Mrs.N.Vithya	**CS6702**-Graph theory Applications	IV /CSE	6	
		MA8551- Algebra and Number Theory	III / CSE	6	18
		MA8151-Engineering Mathematics-I	I-(SEC-B)/ CIVIL,ECE&EEE	6	
2	Ms.S.Poonguzhali	**CS6704** - Resource Management Techniques	IV /CSE	6	
		MA8351-Discrete Mathematics	II/CSE	6	18
		MA8353-Transforms and PDE	II /CIVIL&EEE	6	
3	Ms.R.Divya	**MA8352**-Linear Algebra and PDE	II / ECE	6	
		MA8151- Engineering Mathematics-I	I-(SEC-A) CSE	6	12
4	Mrs.R.Saratha	**BS8161**-Physics Laboratory	I-SEC-A&SEC-B CSE,CIVIL,ECE&EEE	06	06
5	Mrs.V.Vinojini	**PH8151**-Engineering Physics	I-SEC-B CIVIL,ECE&EEE	05	05
6	Mrs.T.Renugadevi	**PH8151**-Engineering Physics	I-SEC A CSE	05	05
7	Ms.T.Annalakshmi	**CY8151**-Engineering Chemistry	I SEC-A/CSE	05	08
		BS8161-Chemistry Laboratory	I SEC-A/CSE	03	
8	Mrs.S.Renugadevi	**CY8151**-Engineering Chemistry	I SEC-B CIVIL,ECE&EEE	05	08
		BS8161-Chemistry Laboratory	I SEC-B CIVIL,ECE&EEE	03	
9	Mr.S.Ramesh Raja	**HS8151**-Communicative English	I-SEC-B CIVIL,ECE&EEE	05+1	08
		HS8381-Interpersonal Skills/Listening &Speaking	II CIVIL,CSE,ECE	2	
10	Mrs.P.Alagumathi	**HS8151**-Communicative English	I-SEC-A CSE	05	
		HS8581- Professional Communication	III/EEE	02	07

HoD/S&H 24/7/19

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DEPARTMENT OF SCIENCE AND HUMANITIES
COURSE PLAN

Subject Code : MA8151	**Branch/Year/Sem :CSE/I/I**
Subject Name : ENGINEERINGMATHEMATICS-I	**Batch** **:2019-2023**
Staff Name **: Ms.R.Divya**	**Academic year** **:2019-2020(ODD)**

COURSE OBJECTIVE

- The goal of this course is to achieve conceptual understanding and to retain the best traditions of traditional calculus.
- The syllabus is designed to provide the basic tools of calculus mainly for the purpose of modeling the engineering problems mathematically and obtaining solutions.
- This is a foundation course which mainly deals with topics such as single variable and multivariable calculus and plays an important role in the understanding of science, engineering, economics and computer science, among other disciplines

TEXT BOOK

T1. Grewal B.S., "Higher Engineering Mathematics", Khanna Publishers, New Delhi, 43rd Edition, 2014.

T2. James Stewart, "Calculus: Early Transcendentals", Cengage Learning, 7th Edition, New Delhi, 2015. [For Units I & III - Sections 1.1, 2.2, 2.3, 2.5, 2.7(Tangents problems only), 2.8, 3.1 to 3.6, 3.11, 4.1, 4.3, 5.1(Area problems only), 5.2, 5.3, 5.4 (excluding net change theorem), 5.5, 7.1 - 7.4 and 7.8].

REFERENCES

R1. Anton, H, Bivens, I and Davis, S, "Calculus", Wiley, 10th Edition, 2016.

R2. Jain R.K. and Iyengar S.R.K., "Advanced Engineering Mathematics", Narosa Publications, New Delhi, 3rd Edition, 2007.

R3. Narayanan, S. and Manicavachagom Pillai, T. K., "Calculus" Volume I and II, S. Viswanathan Publishers Pvt. Ltd., Chennai, 2007.

R4. Srimantha Pal and Bhunia, S.C, "Engineering Mathematics" Oxford University Press, 2015.

R5. Weir, M.D and Joel Hass, "Thomas Calculus", 12th Edition, Pearson India, 2016.

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TEACHING METHODOLOGIES

> ➤ **BB**   BLACK BOARD
> ➤ **PPT**   POWER POINT PRESENTATION

MA8151	**ENGINEERING MATHEMATICS – I**	**L T P C** **4 0 0 4**

UNIT I DIFFERENTIAL CALCULUS   12

Representation of functions - Limit of a function - Continuity - Derivatives - Differentiation rules - Maxima and Minima of functions of one variable.

UNIT II FUNCTIONS OF SEVERAL VARIABLES   12

Partial differentiation – Homogeneous functions and Euler's theorem – Total derivative – Change of variables – Jacobians – Partial differentiation of implicit functions – Taylor's series for functions of two variables – Maxima and minima of functions of two variables – Lagrange's method of undetermined multipliers

UNIT III INTEGRAL CALCULUS   12

Definite and Indefinite integrals - Substitution rule - Techniques of Integration - Integration by parts, Trigonometric integrals, Trigonometric substitutions, Integration of rational functions by partial fraction, Integration of irrational functions - Improper integrals.

UNIT IV MULTIPLE INTEGRALS   12

Double integrals – Change of order of integration – Double integrals in polar coordinates – Area enclosed by plane curves – Triple integrals – Volume of solids – Change of variables in double and triple integrals

UNIT V DIFFERENTIAL EQUATIONS   12

Higher order linear differential equations with constant coefficients - Method of variation of parameters – Homogenous equation of Euler's and Legendre's type – System of simultaneous linear differential equations with constant coefficients - Method of undetermined coefficients.

TOTAL: 60 PERIODS

Topic No	Topic Name	Books For reference	Page No	Teaching Methodology	No of periods required	Cumulative periods
UNIT-I	**DIFFERENTIAL CALCULUS**					**[12]**
1.	Representation of functions	R1	1-30	BB	1	1
2.	Representation of functions	R1	31-48	BB	1	2

3.	Limit of a function	R1	49-61	BB	1	3
4.	Limit of a function	R1	62-80	BB	1	4
5.	Continuity	R1	90-101	BB	1	5
6.	Derivatives	R1	110-122	BB	1	6
7.	Derivatives Differentiation rules (sum, product, quotient, chain rules)	R1	134-148	BB	1	7
8.	Derivatives Differentiation rules (sum, product, quotient, chain rules)	R1	148-160	BB	1	8
9.	Implicit differentiation, Logarithmic differentiation	R1	161-167	BB	1	9
10.	Applications: Maxima and Minima of functions of on a variable.	R1	216-220	BB	1	10
11.	Applications: Maxima and Minima of functions of on a variable.	R1	220-230	BB	1	11
12.	Applications: Maxima and Minima of functions of on a variable.	R1	230-238	BB	1	12

LEARNING OUTCOME:

At the end of unit, the students will be able to

- Understand the concept of two differential calculus.
- Define the concept of function, limits, continuity, derivatives, differentiation rules and application of differential calculus.

UNIT II	FUNCTIONS OF SEVERAL VARIABLES					[12]
13.	Partial differentiation	R1	906-920	BB	1	13
14.	Partial differentiation	R1	920-927	BB	1	14
15.	Homogeneous functions and Euler's theorem	R1	928-937	BB	1	15
16.	Total derivative	R1	949-956	BB	1	16
17.	Change of variables	R1	1056-1060	BB	1	17
18.	Jacobians	R1	1061-1071	BB	1	18
19.	Partial differentiation of implicit functions	R1	940-949	BB	1	19
20.	Taylor's series for functions of two variables	R1	948-959	BB	1	20
21.	Application of Taylor series(**Content Beyond the Syllabus**)	R1	960-962	PPT	1	21
22.	Applications: Maxima and minima of functions of two variables	R1	971-975	BB	1	22
23.	Applications: Maxima and minima of functions of two variables	R1	975-977	BB	1	23
24.	Lagrange's method of undetermined multipliers.	R1	977-980	BB	1	24

25.	Lagrange's method of undetermined multipliers.	R1	980-989	BB	1	25

LEARNING OUTCOME:

At the end of unit, the students will be able to

- Understand the concept of functions of several variables.
- Gain knowledge about classification partial differential equations, homogeneous functions and Euler's theorem, Jacobians, Taylor's theorem, application of partial differential equations.

UNIT – III INTEGRAL CALCULUS [12]

26.	Integrals	R1	265-271	BB	1	26
27.	Basic of Integral calculus	R1	265-271	BB	1	27
28.	Definite integrals	R1	300-309	BB	1	28
29.	Indefinite integrals	R1	271-281	BB	1	29
30.	Substitution rule	R1	281-287	BB	1	30
31.	Techniques of Integration: Integration by parts	R1	491-500	BB	1	31
32.	Techniques of Integration: Integration by parts	R1	500-508	BB	1	32
33.	Trigonometric integrals ,Trigonometric substitutions	R1	508-514	BB	1	33
34.	Trigonometric integrals ,Trigonometric substitutions	R1	533-540	BB	1	34
35.	Integration of rational functions by partial fraction	R1	540-547	BB	1	35
36.	Integration of irrational functions Improper integrals	R1	382-390	BB	1	36
37.	Integration of irrational functions Improper integrals	R1	391-400	BB	1	37
38.	Applications of integral calculus(**Content Beyond the Syllabus**)	W2	-	PPT	1	38

LEARNING OUTCOME:

At the end of unit , the students will be able to

- Understand the concept of Integration.
- Known about various techniques to solve integration.

Get the knowledge about application of integration in Hydrostatics forces and pressure.

UNIT-IV MULTIPLE INTEGRALS [12]

39.	Double integrals	R1	1000-1018	BB	1	39
40.	Change of order of integration	R1	1048-1050	BB	1	40
41.	Change of order of integration	R1	1050-1058	BB	1	41
42.	Double integrals in polar coordinates	R1	1009-1018	BB	1	42
43.	Area enclosed by plane curves	R1	1018-1021	BB	1	43

44.	Area enclosed by plane curves	R1	1021-1026	BB	1	44
45.	Triple integrals	R1	1026-1030	BB	1	45
46.	Volume of solids	R1	1030-1049	BB	1	46
47.	Change of variables in double integrals	W1	-	PPT	1	47
48.	Change of variables in double integrals	W1	-	PPT	1	48
49.	Change of variables in triple integrals	R1	1060-1065	BB	1	49
50.	Change of variables in triple integrals	R1	1065-1071	BB	1	50

LEARNING OUTCOME:

At the end of unit , the students will be able to

- Understand the concept of Multiple integration.
- Know about the concept of finding area, volume, change of variables.
- To know the application of multiple integrals in moments and centers of mass.

UNIT-V	DIFFERENTIAL EQUATIONS					[12]
51.	Introduction to Differential equation	T1	271-281	BB	1	51
52.	Higher order linear differential equations with constant coefficients	T1	281-287	BB	1	52
53.	To find complementary function and particular integral	T1	491-500	BB	1	53
54.	Solve some problems in Type 1 and Type 2	T1	500-508	BB	1	54
55.	Solve some problems in Type 3 and Type 4	T1	508-514	BB	1	55
56.	Homogeneous equation of Euler's type	T1	533-540	BB	1	56
57.	Homogeneous equation of Legendre's type	T1	540-547	BB	1	57
58.	Homogeneous equation of Legendre's type	T1	382-390	BB	1	58
59.	System of simultaneous linear differential equation with constant coefficients	T1	391-400	BB	1	59
60.	Method of undetermined coefficients	T1	400-405	BB	1	60
61.	Problems solve in Method of undetermined coefficients	T1	406-408	BB	1	61
62.	Some problems solved in Method of undetermined coefficients	T1	409-411	BB	1	62

LEARNING OUTCOME:

At the end of unit , the students will be able to

- Understand the concept of Differential equation
- Know about the concept of finding area, volume, change of variables.
- To know the application of multiple integrals in moments and centers of mass.

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COURSE OUTCOME

At the end of the course, the student should be able to:

- Apply both the limit definition and rules of differentiation to differentiate functions.
- Apply differentiation to solve maxima and minima problems.
- Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
- Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.
- Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.
- Apply various techniques in solving differential equations.

CONTENT BEYOND THE SYLLABUS
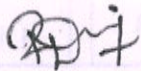
- Basic of Integral calculus.
- Application of Taylor series
- Real time Applications of integral calculus

CONTINUES INTERNAL ASSESSMENT DETAILS

ASSESMENT NUMBER	I	II	III
UNIT	1st,2nd (Half)	2nd (Half),3rd	4th ,5th units
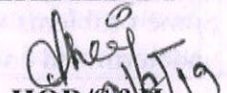
ASSIGNMENT NUMBER	UNIT	DESCRIPTIVE QUESTIONS/TOPIC (Minimum of 8 Pages)	DEADLINE
1	I	Problems based on derivatives, maxima and minima	26/08/2019
2	II	Problems based on Jacobian, Extreme points and Taylor's series	05/09/2019
3	III	Problems based on Integration and Reduction formula	27/09/2019
4	IV	Problems based on triple integral	11/10/2019
5	V	Problems based on methods of variation of parameters	04/11/2019

PREPARED BY

R.DIVYA, AP/MATHS

VERIFIED BY

HOD/S&H

APPROVED BY

PRINCIPAL

Ref: SBECW/ S&H/ Course committee meeting / EM-I/ 2019-2020 (Odd)   DATE: 13.08.19

COURSE COMMITTEE MEETING-MA8151-ENGINEERING MATHEMATICS-I

ACADEMIC YEAR/SEM: 2019-2020/ODD

PROGRAM : BE-CSE   **DATE OF MEETING** : 13.08.19
REGULATION : 2017   **TIME**   : 11.00AM
SEM   : 01   **VENUE**   : S&H Dept. HoD Cabin

Members Present

Table.1 Course committee members

S.No.	Name of the faculty & Designation, Program	Sem/Sec/Program	Signature
1.	Mrs.N.Vithya ,AP/Maths - Course coordinator	I SEM/B/ EEE,ECE,CIVIL	
2.	Ms.R.Divya, AP/Maths	I SEM/A/ CSE	

HOD welcomed all the members present

1. Unit wise syllabus discussed. Nature of qualitative, quantitative, problematic, theoretical concepts etc. have been discussed.

Table.2 Allocation of Period

Number of period per unit	Total number of Peroids	Tutorials
12	60	10

2. Vision and mission of the college, department discussed. POs, PEOs, PSOs discussed.
3. Course outcomes finalized for each units.

Table.3 Course Outcomes

CO	Course Outcomes	POs	PSOs
C102.1	Apply the limit definition and rules of differentiation to differentiate functions.	1,2,3,4,10,12	2
C102.2	Apply differentiation to solve maxima and minima problems.	1,2,3,4,10,12	2
C102.3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.	1,2,3,4,10,12	2
C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.	1,2,3,4,10,12	2
C102.5	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.	1,2,3,4,10,12	2
C102.6	Apply various techniques in solving differential equations.	1,2,3,4,10,12	2

4. Mapping of COs with POs and PSOs is done with suitable correlation levels(1 for low, 2 for medium, 3 for high,"-" for no correlation, before content beyond syllabus)
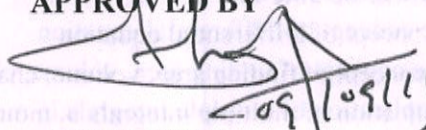
Table.4 Mapping of COs, C, PSOs with POs- before CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C102.1	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.2	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.3	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.4	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.5	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.6	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-

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5. Identification of content beyond syllabus- curricular gaps are identified considering industry needs, employers feedback, alumni feedback, government policy on industrialization, new investments by private/ public sectors, societal needs and level of correlation of COs with POs and PSOs. Accordingly the details of CBS added and its correlation is given below.

Table.5 Identification of content beyond syllabus

Content beyond syllabus added	POs strengthened/Vacant filled	CO/Unit
Application of Taylor Series and Real time application of Integral Calculus	PO4(2) Strengthened	C102.2 & C102.3/ II & III

6. Mapping of COs with POs, PSOs- after CBS.

Table.6 Mapping of COs, C, PSOs with POs- after CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO1
C102.1	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.2	3	2	2	*3	-	-	-	-	-	2	-	2	-	2	-
C102.3	3	2	2	*3	-	-	-	-	-	2	-	2	-	2	-
C102.4	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.5	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.6	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-

7. Content beyond syllabus is thus identified based on the above. Plan for handling of CBS by internal/external resource person/ industrial visits are decided. This will be included in the class log book.

8. Lecture schedule should be prepared unit wise, as in the syllabus. Number of periods per unit and total number of periods planned should not be less than, periods allotted in the syllabus of Anna University.

9. Plan for additional Periods for Cycle tests, CBS, Seminar, Quiz etc are to be incorporated in the lecture schedule. These periods are added exclusive of number of periods prescribed in the syllabus.

10. Plan for at least three assignments (with level of correlation), seminar topic, quiz questions discussed.

11. Separate tutorial sheets should be prepared and supplied to all students. Minimum Two periods per unit to be planned, totally 10 tutorial periods. Minimum 2 tutorial questions should be set per unit, totally 10 tutorial questions.

12. Bright students and slow learners are to be identified, immediately after Cycle test - I. such students may be counselled suitably and the evidence for counselling to be recorded in the attendance cum assessment record. (Sign of students with date and time of counselling, to be strictly recorded and to be attached in the course file).

13. For those students secured less than 60% in the Cycle Test, Makeup test should be conducted. Correspondingly root cause analysis for reasons of failure, corrective and preventive action, and follow up action taken should be filed properly.

14. Contents of course file to be reviewed periodically.

15. Lecture schedule, assignment questions, tutorial questions, course materials, AU questions (at least 5) should be supplied within one week after the commencement of classes.

16. Course material should be uploaded in the college website for student's reference.

17. Discrepancy in question paper, if any to be informed to the controller of examinations through web portal entry, after getting approval from the HoD & the Principal. Critically asked questions, if any to be discussed with the students of the next batch.

18. Immediately after the publication of the results, analysis are to be carried out and follow up action to be taken for the failures.

19. Cycle test question papers should be set as per the norms of the college, incorporating marks for learning outcomes and course outcomes. Common question papers should be set.

20. Certificate courses/ guest lectures may be planned inviting experts from industry/higher learning institutions.

21. After Cycle test, an objective type tests may be conducted (3 times in a semester-30 minutes duration- maximum 10 questions). Questions asked in GATE, TANCET, IES or any other Competitive examination can be taken as a reference. This is to facilitate the bright students to prepare for higher level of thinking and to enhance placement and higher studies opportunities.

22. Cycle test papers, assignment papers or any other papers submitted by the students, should be returned to the students within 5 days after correction. Sample paper should be suitably filed.

23. Long absentees of students if any to be informed to the parents through class coordinator, if such students attendance less than 75%

N.Vithya.
Course coordinator

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DEPARTMENT OF SCIENCE AND HUMANITIES

Identification of Curricular Gap & Content Beyond Syllabus(CBS)

Name of the Faculty :Ms.R.Divya   Course Code & Name:MA8151 & EM -I

Degree & Program:B.E. /CSE   Semester & Section: I / A   Academic Year: 2019 -2020 /ODD

I.Mapping of Course Outcomes with POs & PSOs.(before CBS)

Table.1 Mapping of COs, C, PSOs with POs - before CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C102.1	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.2	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.3	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.4	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.5	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.6	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-

II. Identification of content beyond syllabus.
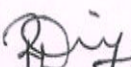
Table.2 Identification of content beyond syllabus

Details of Content Beyond Syllabus(CBS) added	POs strengthened/ vacant filled	CO/Unit
Application of Taylor Series and Real time application of Integral Calculus	PO4(2) Strengthened	C102.2 & C102.3/ II & III

III. Mapping of Course Outcomes with POs & PSOs. (After CBS)

Table.3 Mapping of COs, C, PSOs with POs- after CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C102.1	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.2	3	2	2	*3	-	-	-	-	-	2	-	2	-	2	-
C102.3	3	2	2	*3	-	-	-	-	-	2	-	2	-	2	-
C102.4	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.5	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102.6	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-
C102	3	2	2	2	-	-	-	-	-	2	-	2	-	2	-

Signature of the Faculty

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DEPARTMENT OF SCIENCE AND HUMANITIES

Assignment Question Paper

	Assignment – 03		Date of Issue:	06.09.2019	**Marks**	10
Course code	MA8151	**Course Title**	Engineering Mathematics -I			
Year	I	**Semester/Section**	I / A	**Date of Submission:**	11.09.2019	

Q.No	Questions	CO
1	If $r^2 = x^2 + y^2$ then show that $\frac{\partial^2 r}{\partial x^2} + \frac{\partial^2 r}{\partial y^2} = \frac{1}{r}\left[\left(\frac{\partial r}{\partial x}\right)^2 + \left(\frac{\partial r}{\partial y}\right)^2\right].$	C102.2
2	If $\log u = \frac{x^3 + y^3}{3x + 4y}$ then show that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 2u\log u.$	C102.2
3	Find the total derivative of $u = xyz + (xyz)^{-1}.$	C102.2
4	Find the value of the Jacobian $\frac{\partial(u,v)}{\partial(r,\theta)}$, where $u = x^2 - y^2, v = 2xy,$ and $x = r\cos\theta, y = r\sin\theta.$	C102.2

[R.DIVYA]
Name and Signature of the Faculty Incharge

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DEPARTMENT OF SCIENCE AND HUMANITIES

Assignment Answer Sheet

Name of the Student : J. Helan

AU Register Number: 9126191OAO10

	Assignment – 03		Date of Issue:	06.09.2019	Marks	10
Course code	MA8151	Course Title	Engineering Mathematics-I			
Year	I	Semester/Section	I / A	Date of Submission:	11.09.2019	

Q.No	Questions	CO
1	If $r^2 = x^2 + y^2$ then show that $\frac{\partial^2 r}{\partial x^2} + \frac{\partial^2 r}{\partial y^2} = \frac{1}{r}\left[\left(\frac{\partial r}{\partial x}\right)^2 + \left(\frac{\partial r}{\partial y}\right)^2\right]$.	C102.2
2	If $\log u = \frac{x^3+y^3}{3x+4y}$ then show that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 2u \log u$.	C102.2
3	Find the total derivative of $u = xyz + (xyz)^{-1}$.	C102.2
4	Find the value of the Jacobian $\frac{\partial(u,v)}{\partial(r,\theta)}$, where $u = x^2 - y^2$, $v = 2xy$, and $x = r\cos\theta, y = r\sin\theta$.	C102.2

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	6
Presentation Quality	2	1
Timely submission	2	2
Total marks	10	9

[R.DIVYA]
Name and Signature of the Faculty Incharge

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DEPARTMENT OF SCIENCE AND HUMANITIES

Tutorial Question Paper

Tutorial – 04			Date of Issue:	05.09.2019	Marks	10
Course code	MA8151	Course Title	Engineering Mathematics -I			
Year	I	Semester/Section	I/ A	Date of Submission:	07.09.2019	

Q.No	Questions	CO
1	If $u = e^{x^3+y^3}$ then prove that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 3u\,logu$.	C102.1
2	Verify Euler's theorem for the function $u = x^3+y^3 + z^3 + 3xyz$.	C102.1
3	If $u = x^2y^3, x = logt, y = e^t$ find $\frac{du}{dt}$.	C102.1
4	Find the total derivative of $u = xyz + (xyz)^{-1}$.	C102.1

[R.DIVYA]
Name and Signature of the Faculty Incharge

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[T.ANNALAKSHI

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DEPARTMENT OF SCIENCE AND HUMANITIES
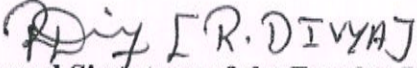
Tutorial Answer Sheet

Name of the Student : Sneha.R
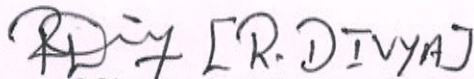
AU Register Number: 912619104027

Tutorial – 04			Date of Issue:	05.09.2019	Marks	10
Course code	MA8151	Course Title	Engineering Mathematics-I			
Year	I	Semester/Section	I / A	Date of Submission:	07.09.2019	

Q.No	Questions	CO
1	If $u = e^{x^3+y^3}$ then prove that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = 3u \, logu$.	C102.1
2	Verify Euler's theorem for the function $u = x^3+y^3 + z^3 + 3xyz$.	C102.1
3	If $u = x^2 y^3, x = logt, y = e^t$ find $\frac{du}{dt}$.	C102.1
4	Find the total derivative of $u = xyz + (xyz)^{-1}$.	C102.1

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Problem solving approach	6	5
Correctness of Answer	2	2
Timely submission	2	2
Total marks	10	9

[R.DIVYA]
Name and Signature of the Faculty Incharge

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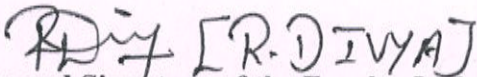Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

IQAC Academic Audit Form

ACADEMIC YEAR: 2019-2020   ODD   SEMESTER

Name of Department :	S&H	Year / Sem / Sec :	1 / I / A	No. of Students Registered :	29
Details of Examination :	CT-1 / CT-2/ CT-3				

S.No.	Course Code	List of Reg.No Verified	Course Log Book Verified (Y / N)	Course File Verified (Y / N)	No of students Passed	No of Absentees	No of Failures	Pass %	Remarks
1.	HS8151	912619104019	Y	Y	8	6	15	35%	–
2.	MA8151	91261910A011	Y	Y	15	5	9	62.5%	–
3.	PH8151	912619104025	Y	Y	17	7	5	77.2%	–
A.	CY8151	912619104004	Y	Y	15	7	7	68.2%	–
5.	GE8151	912619104023	Y	Y	20	6	3	87%	–
6.	GE8152	912619104009	Y	Y	15	7	7	68%	–

Verified by

External Member Name and Signature:	G.sugapriya [signature]
Internal Member Name and Signature:	R. Self [R. SARATHA]

Overall Remarks:

Try to improve pass percentage in subject with subject code HS8151

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PUDUKKOTTAI - 622 303.

IQAC Coordinator
10/10/2019

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Principal

PRINCIPAL
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KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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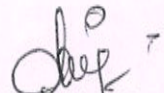Kaikkurichi, Pudukkottai – 622 303

DEPARTMENT OF SCIENCE AND HUMANITIES

SUBJECT CODE &TITLE: MA8151& Engineering Mathematics-I

YEAR/SEM : I/I

SECTION /BRANCH : A /CSE

STUDENT FEEDBACK ON FACULTY

S.NO.	DESCRIPTION	SCORED OUT OF 4	SCORED OUT OF 100
1.	Syllabus coverage as prescribed by university	3.5	87
2.	Technical knowledge of the teacher	3.7	92
3.	Teacher's communication skill	3.8	96
4.	Regularity in taking classes	3.6	89
5.	Helping the students in conducting the experiment through set of instruction and demonstrations	3.8	96
6.	Tendency of inviting opinion and question on subject matter from students	3.7	93
7.	Knowledge of the Teacher in latest development of field	3.8	96
8.	Perfectness of valuation	3.8	95
	OVERALL SCORE	3.7	93.54

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REPORT SHEET

S.NO	REG.NO	NAME	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1.	912619104001	ANNAPOORANI M	4	3	4	3	4	3	4	4
2.	912619104002	ANUSUYA S	3	4	4	4	4	3	4	4
3.	912619104003	ARUNNAVAMEENA A	3	4	4	3	4	4	4	4
4.	912619104004	DAYANA P	4	4	4	4	4	4	3	4
5.	912619104005	DHARSHINI D	3	3	4	4	3	4	4	4
6.	912619104006	FAHIMA F	3	4	4	3	4	4	4	4
7.	912619104007	FAHMIDHA B	4	4	4	4	4	3	4	4
8.	912619104008	GAYATHRI DEVI.G	-	-	-	-	-	-	-	-
9.	912619104009	GULNAS FATHIMA S	3	4	4	3	4	4	4	4
10.	912619104010	HELAN J	4	4	3	4	4	4	3	3
11.	912619104011	KEERTHANA R	3	4	3	3	3	4	3	4
12.	912619104012	MUTHULAKSHMI G	4	4	3	4	4	4	4	4
13.	912619104013	MUTHU MEENAKSHI M	4	4	4	4	4	3	4	4
14.	912619104014	NIROSHIKA R	4	3	4	4	4	4	4	3
15.	912619104015	NISHA D	3	3	4	3	4	4	4	4
16.	912619104016	NITHYA M	3	4	4	4	4	4	4	3
17.	912619104017	PARAMESHWARI S	4	3	4	3	4	4	4	4
18.	912619104018	PRIYANGA.R	-	-	-	-	-	-	-	-
19.	912619104019	RANJANI K	3	4	4	4	4	3	3	3
20.	912619104020	RILWANA PARVEEN J	4	4	3	3	3	4	4	4
21.	912619104021	ROOPINA R	3	4	4	4	4	4	4	4
22.	912619104022	SANDHIYA B	4	3	4	3	4	3	4	4
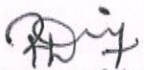
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No.	Reg. No.	Name								
23.	912619104023	SANTHI D	3	4	4	4	4	4	4	4
24.	912619104024	SARANYA C	4	4	4	3	4	3	4	4
25.	912619104025	SARUMATHI A	3	3	3	4	4	4	4	4
26.	912619104026	SINEKA.K	-	-	-	-	-	-	-	-
27.	912619104027	SNEHA R	4	4	4	4	4	4	4	4
28.	912619104028	SRIJA.T	-	-	-	-	-	-	-	-
29.	912619104029	SURIYA JOTHI S	3	4	4	4	3	4	4	3
		AVERAGE	3.5	3.7	3.8	3.6	3.8	3.7	3.8	3.8
		PERCENTAGE	87	92	96	89	96	93	96	95

EXCELLENT	VERY GOOD	GOOD	AVERAGE	POOR
4	3	2	1	0

Signature of the Faculty

HoD/S&H

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PUDUKKOTTAI - 622 303.

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<u>Circular</u>   Date: 03-09-2019

The first cycle test will be conducted on 11.09.2019 to 19.09.2019 for the I semester (I year) students.

The following instructions are to be followed by the faculty members.

- Total marks for which the question paper to be set will be for 60 marks.

- Question Pattern – Part A – 10 X 2 = 20 Marks, Part B – 2 X 16=32 Marks & 01 X 08 = 08 Marks

- It is the responsibility of the question paper setter to take the Xerox copies of the required number of question papers with the help of Ms. Anusha. G & Ms. Keerthana. P and it should be handed over to the Exam Coordinator Mr. J. Sathyaraj A.P/ EEE on or before 09.09.2019.

- The Exam Coordinators (exam cell) are requested to make necessary arrangements (hall arrangements, invigilation duty etc.,) for conducting the test.

- Faculty members are requested to handover the valued answer scripts to the students on or before 20.09.2019 and the class in-charges are requested to send the consolidated mark sheet along with the attendance percentage to the parents on or before 21.09.2019.

PRINCIPAL

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Cc:
- All faculty
- Exam cell
- Office file

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
KAIKKURICHI, PUDUKKOTTAI – 622 303.

Circular

Date: 03-09-2019

The first cycle test will be conducted on 11.09.2019 to 19.09.2019 for the I semester (I year) B.E/ B.Tech students for 60 marks as per the time table given below. Students are directed to prepare well and score good marks.

Date	(2.15 pm - 4.15 pm)
11.09.2019	MA8151 - Engineering Mathematics – I
12.09.2019	GE8151 - Problem Solving and Python Programming
13.09.2019	CY8151 - Engineering Chemistry
14.09.2019	HS8151 - Communicative English
16.09.2019	PH8151 - Engineering Physics
19.09.2019	GE8152 - Engineering Graphics

PRINCIPAL

Cc:
- All I year B.E / B.Tech Classes
- All faculty
- Exam cell
- Notice Board
- Office file

Dr. **S.THILAGAVATHI** M.E.,Ph.D.,
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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Cycle Test- I			Date/Session	11.09.2019/FN	Marks		60
Course code	MA8151	Course Title	Engineering Mathematics-I				
Regulation	2017	Duration	2 hours		Academic Year		2019-2020
Year	I	Semester	I		Department		CSE

COURSE OUTCOMES

C102.1:	Apply the limit definition and rules of differentiation to differentiate functions.
C102.2:	Apply differentiation to solve maxima and minima problems.
C102.3:	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
C102.4:	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.
C102.5:	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.
C102.6:	Apply various techniques in solving differential equations.

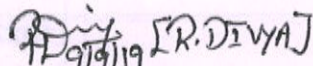| Q.No.	Question	CO	BTS
	PART A **(Answer all the Questions 10 x 2 = 20 Marks)**		
1	Find the domain of a function $y = \sqrt{x+4}$.	C102.1	K3
2	Find $\lim_{x \to 0} \frac{1-\cos x}{x}$.	C102.1	K3
3	Where are each of the following functions discontinuous $f(x) \frac{x^2-x-2}{x-2}$.	C102.1	K2
4	Find an equation of the tangent line to the parabola $y = x^2 - 8x + 9$ at the point (3,-6).	C102.1	K3
5	Find the domain of the function $g(x) = \frac{1}{x^2-x}$.	C102.1	K3
6	Given $u = x^2 \tan^{-1}(y/x) - y^2 \tan^{-1}(y/x)$. Find $x^2 u_{xx} + 2xy\, u_{xy} + y^2 u_{yy}$.	C102.2	K3
7	State Euler's theorem.	C102.2	K1
8	If $u = \sin^{-1}(\frac{x+y}{\sqrt{x}+\sqrt{y}})$. Show that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \frac{1}{2} \tan u$.	C102.2	K3
9	Find the Jacobian of the transformation $u = \frac{2x-y}{2}, v = \frac{y}{2}$.	C102.2	K3
10	Find $u_{xx} + u_{yy} + u_{zz}$, if $u = \log(x^2 + y^2 + z^2)$.	C102.2	K3
	PART B **(Answer all the Questions 2 x 16 = 32 Marks and 1 x 8 = 8 marks)**		
11a	(i)If $f(x) = \begin{cases} 2x - 2 \text{ if } x < -1 \\ ax + b \text{ if } -1 < x < 1 \\ 5x + 7 \text{ if } x \geq 1 \end{cases}$ is continuous for all real x, find the values of a and b. (08) (ii)If $y = \sin^{-1}\left(\frac{2x}{1+x^2}\right)$, find $\frac{dy}{dx}$. (08)	C102.1	K3

OR

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11b	(i)If $x^y = e^{x-y}$, Prove that $\frac{dy}{dx} = \frac{\log x}{(1+\log x)^2}$.	(08)	C102.1	K3
	(ii)Evaluate $\lim_{x \to 1} \left[\frac{x}{x-1} - \frac{1}{\log x}\right]$.	(08)		
12a	(i) Evaluate $\lim_{x \to 1} \left(\frac{1}{x}\right)^{\tan x}$.	(08)	C102.1	K3
	ii)Verify Rolle's theorem for $f(x) = x(x+2)e^{-\frac{x}{2}}$ in the interval [-2,0].	(08)		

<center>OR</center>

12b	(i)Determine the absolute extrema for the function $f(x) = 2x^3 + 3x^2 - 12x + 4$ on [-4,2].	(08)	C102.1	K3
	(ii)find any local extrema of $x^4 - 8x^2$ using second derivative.	(08)		
13a	If $Z = f(x,y)$ where $x = r\cos\theta, y = r\sin\theta$. Show that $\left(\frac{\partial z}{\partial x}\right)^2 + \left(\frac{\partial z}{\partial y}\right)^2 = \left(\frac{\partial z}{\partial r}\right)^2 + \frac{1}{r^2}\left(\frac{\partial z}{\partial x}\right)^2$.	(08)	C102.2	K3

<center>OR</center>

13b	If $z = u(x,y)$ where $x = e^u \cos v$ and $y = e^u \sin v$, show that $y\frac{\partial z}{\partial u} + x\frac{\partial z}{\partial v} = e^{2u}\frac{\partial z}{\partial y}$. (08)	C102.2	K3

9/9/19 [R.DIVYA]
Course Faculty
(Name /Sign / Date)

HoD 9/9/19
T.ANNALAKSHMI
HOD / S&H
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MA8151 - Engineering Mathematics - I

Cycle Test - I

Answer key

Part - A

1. The domain is the interval $[-4, \infty)$.

2. $\lim_{x \to 0} \dfrac{2 \sin^2 x/2}{2} = 1 \cdot 0 = 0$

3. $f(2)$ is not defined so f is discontinuous at 2.

4. $f'(x) = 2x - \infty$, $f'(a) = 2a - 8$, $f'(3) = -2$. $y = -2x$

5. The domain is $\{(-\infty, 0) \cup (0, 1) \cup (1, \infty)\}$

6. $x^2 u_{xx} + 2xy u_{xy} + y^2 u_{yy} = n(n-1)u = 2(2-1)u = 2u$

7. Euler's Theorem: If u is a homogeneous function of degree n in x and y then $x \dfrac{\partial u}{\partial x} + y \dfrac{\partial u}{\partial y} = nu$.

8. $\sin u = \dfrac{x+y}{\sqrt{x} + \sqrt{y}}$; $x \dfrac{\partial (\sin u)}{\partial x} + y \dfrac{\partial (\sin u)}{\partial y} = \dfrac{1}{2} \sin u = \dfrac{1}{2} \tan$

9. $\dfrac{\partial u}{\partial x} = 1, \dfrac{\partial u}{\partial y} = -\dfrac{1}{2}$; $\dfrac{\partial v}{\partial x} = 0, \dfrac{\partial v}{\partial y} = \dfrac{1}{2}$; $J = \dfrac{1}{2}$

10. $\dfrac{\partial^2 u}{\partial x^2} + \dfrac{\partial^2 u}{\partial y^2} + \dfrac{\partial^2 u}{\partial z^2} = \dfrac{2[y^2 + z^2 - x^2 + x^2 + z^2 - y^2 + x^2 + y^2 - z^2]}{(x^2 + y^2 + z^2)^2}$

$= \dfrac{2}{x^2 + y^2 + z^2}$

Part-B

11.
a) (i) At $x = -1$, $\lim\limits_{x \to -1^-} f(x) = \lim\limits_{x \to -1^+} f(x) = f(-1)$ ——— (1)

$$\lim\limits_{x \to 1^-} f(x) = \lim\limits_{x \to -1^-} (2x-2) = -4, \quad f(-1) = a(-1) + b = -4$$

$$a - b = 4 \quad \llcorner (3)$$

At $x = 1$ $\quad \lim\limits_{x \to 1^-} f(x) = \lim\limits_{x \to 1^+} f(x) = f(1)$

$$\lim\limits_{x \to 1^+} f(x) = 12, \quad f(1) = a + b = 12 \quad ——— (3)$$

$$a = 8, \ b = 4 \quad ——— (1)$$

ii) $\quad u = 2x / 1 + x^2, \quad \dfrac{du}{dx} = \dfrac{2(1-x^2)}{(1+x^2)^2}, \quad \dfrac{dy}{du} = \dfrac{1}{\sqrt{1-u^2}} \quad ——— (3)$

$$\dfrac{dy}{dx} = \dfrac{dy}{du} \times \dfrac{du}{dx} = \dfrac{1}{\sqrt{1-u^2}} \cdot \dfrac{2(1-x^2)}{(1+x^2)^2} \quad ——— (2)$$

$$= \dfrac{2(1-x^2)}{(1+x^2)} \cdot \dfrac{1}{\sqrt{x^4 - 2x^2 + 1}} = \dfrac{2}{1+x^2} \quad ——— (3)$$

11.
b) (i) $\quad x^y = e^{x-y} \Rightarrow \log(x^y) = \log(e^{x-y}) \Rightarrow y \log x = x - y \quad ——— (4)$

$$y = \dfrac{x}{\log x + 1} \Rightarrow \dfrac{dy}{dx} = \dfrac{\log x}{(1 + \log x)^2} \quad ——— (4)$$

(ii) $\quad \lim\limits_{x \to 1} \left[\dfrac{x}{x-1} - \dfrac{1}{\log x} \right] = \infty \cdot \infty \quad ——— (1)$

$$\lim\limits_{x \to 1} \left[\dfrac{x \log x - (x-1)}{(x-1) \log x} \right] = \left(\dfrac{0}{0} \right) \Rightarrow \lim\limits_{x \to 1} \dfrac{\log x + x \cdot \frac{1}{x} - 1}{(x-1)(\frac{1}{x}) + \log x (1)} = \llcorner$$

$$\Rightarrow \lim\limits_{x \to 1} \dfrac{1/x}{1/x^2 + 1/x} = \lim\limits_{x \to 1} \dfrac{x}{1+x} = \tfrac{1}{2} \quad ——— (3)$$

12. (i) $X = \lim\limits_{x \to 0} (1/x)^{\tan x} = (\infty)^0 \Rightarrow \log x = \lim\limits_{x \to 0} \log (1/x)^{\tan x} = (0 \times \infty)$ —(3

a)

$\Rightarrow \lim\limits_{x \to 0} \dfrac{1}{\cot x} \log (x^{-1}) = \infty/\infty \Rightarrow \lim\limits_{x \to 0} \dfrac{-1(1/x)}{-\cosec^2 x} = \lim\limits_{x \to 0} \dfrac{\sin^2 x}{x}$ —(3

$$\log x = (1)^2 \, 0 \Rightarrow X = e^0 = 1 \qquad\qquad (2)$$

(ii) $f(x) = x(x+2) e^{-x/2} \Rightarrow f(-2) = 0, \, f(0) = 0$ —— (1)

$$f'(x) = e^{-x/2} \left[-\dfrac{x^2 + 2x + 4}{2} \right] \Rightarrow f'(x) = 0 \Rightarrow -x^2 + 2x + 4$$
$$\rule{2cm}{0.4pt}(2$$

$$x = \dfrac{2 \pm \sqrt{4 + 16}}{2} = 1 \pm \sqrt{5} \qquad\qquad (2)$$

$1 - \sqrt{5} = -1.2361$ is in the $(-2, 0)$ —— (2)

12. (i) $f'(x) = 6x^2 + 6x - 12, \; x = 1, \, x = -2, \, f(1) = -3, \, f(-2) = 24$

b)
$$\rule{2cm}{0.4pt}(3)$$

$$f(a) = -28, \, f(b) = 8 \qquad\qquad (3)$$

Absolute maximum is 24 at $x = -2$ $\Big\}$ —— (2)
Absolute minimum is -28 at $x = -4$

(ii)
$$\dfrac{dy}{dx} = 4x^3 - 16x \Rightarrow x = 0, \, 2, \, -2 \qquad\qquad (1)$$

$$\dfrac{d^2 y}{dx^2} = 12x^2 - 16 \qquad\qquad (1)$$

$$\dfrac{d^2 y}{dx^2} \to$$
at $x = 0 = -16 < 0$, maximum value is 6 —(
at $x = 2 = 32 > 0$, minimum value is -16 —
at $x = -2 = 32 > 0$, minimum value is -16 —(

13. a)

(i)
$$\left(\frac{\partial z}{\partial r}\right)^2 = \left(\frac{\partial z}{\partial x}\right)^2 \cos^2\theta + \left(\frac{\partial z}{\partial y}\right)^2 \sin^2\theta + 2\frac{\partial z}{\partial x}\frac{\partial z}{\partial y}\sin\theta\cos\theta$$
⎿——(3)

$$\frac{1}{r^2}\left(\frac{\partial z}{\partial\theta}\right)^2 = \left(\frac{\partial z}{\partial y}\right)^2\cos^2\theta + \left(\frac{\partial z}{\partial x}\right)^2\sin^2\theta - 2\frac{\partial z}{\partial x}\frac{\partial z}{\partial y}\sin\theta\cos\theta$$
⎿——(3)

$$\left(\frac{\partial z}{\partial r}\right)^2 + \frac{1}{r^2}\left(\frac{\partial z}{\partial\theta}\right)^2 = \left(\frac{\partial z}{\partial x}\right)^2 + \left(\frac{\partial z}{\partial y}\right)^2 \quad\text{——(2)}$$
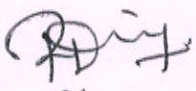
(ii)
$$\frac{\partial x}{\partial u} = e^u\cos v, \quad \frac{\partial x}{\partial v} = -e^u\sin v, \quad \frac{\partial y}{\partial u} = e^u\sin v, \quad \frac{\partial y}{\partial v} = e^u\cos v$$
⎿——(1)

$$\frac{\partial z}{\partial u} = \frac{\partial z}{\partial x}\cdot\frac{\partial x}{\partial u} + \frac{\partial z}{\partial y}\cdot\frac{\partial y}{\partial u} = x\frac{\partial z}{\partial x} + y\frac{\partial z}{\partial y} \quad\text{——(2)}$$

——(1)

$$\frac{\partial z}{\partial v} = -y\frac{\partial z}{\partial x} + x\frac{\partial z}{\partial y}$$

$$y\frac{\partial z}{\partial u} + x\frac{\partial z}{\partial v} = xy\frac{\partial z}{\partial x} + y^2\frac{\partial z}{\partial y} - xy\frac{\partial z}{\partial x} + x^2\frac{\partial z}{\partial y} \quad\text{——(2)}$$

$$= e^{2u}(\sin^2 v + \cos^2 v)\frac{\partial z}{\partial y}$$

$$= e^{2u}\frac{\partial z}{\partial y} \quad\text{——(2)}$$

Faculty Incharge

HOD / S&H

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Cycle Test Answer Book

Name	S. Gulnas Jathima			Year/ Semester	I / I
Reg No.	912619104009	Date/Session	11.09.2019/FN	Department	CSE
Course code	MA8151	Course Title	Engineering mathematics I		
Cycle Test (Put a tick mark)		CT 1 ☑	CT 2 ☐	CT 3 ☐ Model ☐	
Name and Signature of the Invigilator with date			-V. 10... 11/9/19 [V·NITHYA POORANI/AP/ECE]		

Instruction to the Student: Put tick mark to the question attended in the column against question.

Part A			Part B / Part C					Total Marks
Q. No.	✓	Marks	Q. NO.	✓	a Marks	✓	b Marks	
1	✓	2	11			✓	7+8	15
2	✓	1	12	✓	8+7			15
3	✓	2	13	✓	8			08
4	✓	1	14					
5	✓	1	15					
6	✓	2	16					
7	✓	1				Grand Total		38
8	✓	2						
9	✓	2			53	ⓅⒹ 11/9/19 [R·DIVYA]		
10	✓	1				Name and Signature		
Total		15	Grand Total			of the Examiner with date		

To be filled by the examiner							
Course Outcomes	1	2	3	4	5	6	Total
Marks allotted	42	18					60
Marks Obtained	37	16					53

IQAC Audit - Remarks

P. SUBHA

Name and Signature of the IQAC member

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KAIKKURICHI,PUDUKKOTTAI-622 303
ACADEMIC YEAR 2019-2020--- ODD SEMESTER
STUDENTS MARK STATEMENT –CO BASED
SECTION –A
CYCLE TEST-I

PROGRAM   : B.E / CSE
YEAR/SEM   : I/I
SUBJECT CODE & TITLE : MA8151-ENGINEERING MATHEMATICS-I
DATE   : 11.09.2019

SI .NO	REG.NO	NAME	CO1 (42)	CO2 (18)	TOTAL (60)	MARKS (100)
1	912619104001	ANNAPOORANI M	28	10	38	63
2	912619104002	ANUSUYA S	09	03	12	20
3	912619104003	ARUNNAVAMEENA A	33	13	46	77
4	912619104004	DAYANA P	25	09	34	57
5	912619104005	DHARSHINI D	20	10	30	50
6	912619104006	FAHIMA F	10	08	18	30
7	912619104007	FAHMIDHA B	26	12	38	63
8	912619104008	GAYATHRI DEVI.G	-	-	AB	AB
9	912619104009	GULNAS FATHIMA S	37	16	53	88
10	912619104010	HELAN J	41	17	58	97
11	912619104011	KEERTHANA R	40	17	57	95
12	912619104012	MUTHULAKSHMI G	34	16	50	83
13	912619104013	MUTHU MEENAKSHI M	15	06	21	35
14	912619104014	NIROSHIKA R	08	04	12	20
15	912619104015	NISHA D	-	-	AB	AB
16	912619104016	NITHYA M	35	13	48	80
17	912619104017	PARAMESHWARI S	12	06	18	30
18	912619104018	PRIYANGA.R	-	-	AB	AB
19	912619104019	RANJANI K	22	10	32	53
20	912619104020	RILWANA PARVEEN J	41	17	58	97
21	912619104021	ROOPINA R	13	05	18	30
22	912619104022	SANDHIYA B	37	16	53	88
23	912619104023	SANTHI D	10	05	15	25
24	912619104024	SARANYA C	07	05	12	20
25	912619104025	SARUMATHI A	42	18	60	100
26	912619104026	SINEKA.K	-	-	AB	AB
27	912619104027	SNEHA R	37	15	52	87
28	912619104028	SRIJA.T	-	-	AB	AB
29	912619104029	SURIYA JOTHI S	14	07	21	35
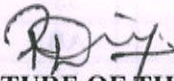
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MARK RANGE:

<20	20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
-	07	02	01	02	02	02	04	04

Total Number of Students Present	24
Total Number of Students Absent	05
Total Number of Candidates Pass	15
Total Number of Candidates Fail	09
Percentage of Pass	62.5%
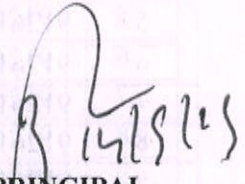
SIGNATURE OF THE FACULTY

HoD/S&H 12/9/19

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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India
DEPARTMENT OF SCIENCE AND HUMANITIES

ROOT CAUSE ANALYSIS

Name of the Faculty : Ms.R.Divya	**Course Code & Name** : MA8151-Engineering Mathematics-I	
Degree & Program : B.E & CSE	**Semester** : I	
Cycle Test : I /II/III	**Month & Year** : September & 2019	
Target : 100 %	**Achieved** : 62·5 %	
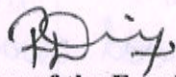
S.NO	REG NO	NAME OF THE STUDENT	CAUSES FOR FAILURE	CORRECTIVE ACTION TAKEN
1.	912619104002	S. Anusuya	Confused applying formula	Instructed to prepare well
2.	912619104006	F. Fahima	Not well Prepared	More home work sums given
3.	912619104008	G. Gayathri Devi	—	—
4.	912619104013	M. Muthu meeakshi	Due to Careless mistakes	Given home test.
5.	912619104014	R. Niroshika	Confused in Concepts	Instructed to study well
6.	912619104015	D. Nisha	Due to health issue	Instructed to write the exam without absent
7.	912619104017	S. Parameshwari	Not well Prepared	Instructed to Prepare well
8.	912619104018	R. Priyanga	—	—
9.	912619104021	R. Roopina	Careless mistake	more assignment sums given.
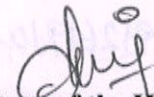
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10.	912619104023	D. Santhi	Confused applying formula	Instructed to study well
11.	912619104024	C. Saranya	Due to health issue	more home work sums given
12.	912619104026	K. Sineka	—	—
13.	912619104028	T. Srija	—	—
14.	912619104029	S. Suriyajothi	not well Prepared	Given home test

Signature of the Faculty Member

Signature of the HoD/S&H

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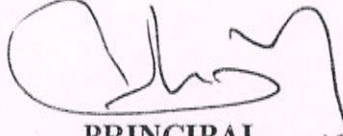
Date: 21.09.2019

Retest for first cycle test will be conducted from **25.09.2019 to 01.10.2019** for the I semester (I year) B.E students for **50 marks** as per the time table given below. Students are directed to prepare well and score good marks.

Date	04.00 pm -05.30 pm
25.09.2019	MA8151-Engineering Mathematics-I
26.09.2019	PH8151-Engineering Physics
27.09.2019	HS8151-Communicative English
28.09.2019	GE8152-Engineering Graphics
30.09.2019	CY8151-Engineering Chemistry
01.10.2019	GE8151-Problem Solving and Python Programming

PRINCIPAL

21/09/2019

Cc:
- All I year B.E Classes
- All faculty
- Exam cell
- Notice Board
- Office file

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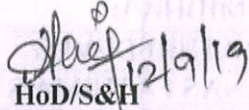# SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Cycle Test– I (Retest)			Date/Session	25.09.2019	Marks	50
Course code	MA8151	Course Title	Engineering Mathematics-I			
Regulation	2017	Duration	01.30 hours	Academic Year		2019-2020
Year	I	Semester	I	Department		CSE

COURSE OUTCOMES	
C102.1:	Apply the limit definition and rules of differentiation to differentiate functions.
C102.2:	Apply differentiation to solve maxima and minima problems.
C102.3:	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
C102.4:	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.
C102.5:	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.
C102.6:	Apply various techniques in solving differential equations.

Q.No.	Question	CO	BTS
	PART A (Answer all the Questions 9 x 2 = 18 Marks)		
1	Find the domain of the range of the function defined by the co ordinates {(-4,1), (-2,2.5),(3,-2)}.	C102.1	K3
2	Find $\lim_{x\to 0}\frac{e^x-1}{x}$.	C102.1	K3
3	Evaluate the following $\lim_{x\to 0}\frac{x^3-8}{x-2}$.	C102.1	K3
4	Find the maxima and minima of the function $2x^3 - 3x^2 - 36x + 10$.	C102.1	K3
5	Find the Jacobian of the transformation $u = \frac{2x-y}{2}, v = \frac{y}{2}$.	C102.2	K3
6	Find $\frac{du}{dt}$ if $u = \frac{x}{y}$ where $x = e^t, y = logt$.	C102.2	K3
7	Find $\frac{dy}{dx}$ when $x^3 + y^3 = 3axy$.	C102.2	K3
8	Properties of jacobians.	C102.2	K3
9	If $x = rcos\theta, y = rsin\theta$ find $\frac{\partial(x,y)}{\partial(r,\theta)}$	C102.2	K3
	PART B (Answer all the Questions 2 x 16 = 32 Marks)		
11a	(i)If $f(x) = \begin{cases} \frac{x^2-4}{x-2} & if\ x < 2 \\ ax^2 - bx + 3 & if 2 \le x < 3 \\ 2x - a + b & if\ x \ge 3 \end{cases}$ is continuous for all real x, find the values of a and b. (08) (ii) Evaluate $\lim_{x\to\frac{\pi}{2}}(cosx)^{cosx}$. (08)	C102.1	K3
	OR		
11b	(i) If $= log\left(\frac{1-sinx}{1+sinx}\right)$ find $\frac{dy}{dx}$. (08) (ii)Evaluate $\lim_{x\to 0}\left[\frac{1}{x} - \frac{1}{e^x-1}\right]$. (08)	C102.1	K3
12a	(i)If $r^2 = x^2 + y^2$ then show that $\frac{\partial^2 r}{\partial x^2} = \frac{1}{r}\left[\left(\frac{\partial r}{\partial x}\right)^2 + \left(\frac{\partial r}{\partial y}\right)^2\right]$. (08) (ii)If $logu = \frac{x^3+y^3}{3x+4y}$ then show that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 2ulogu$. (08)	C102.2	K3
	OR		

12b	(i)Find $\frac{du}{dx}$,if $u = x \log xy$ where $x^3 + y^3 + 3xy = 1$.	(08)	C102.2	K3
	(ii)If $x = u \cos v, y = u \, sinv$, show that $JJ' = 1$.	(08)		

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

KAIKURICHI,PUDUKKOTTAI -622 303

ACADEMIC YEAR 2019-2020--- ODD SEMESTER

ATTENDANCE SHEET FOR RETEST

SECTION -A

RETEST FOR CYCLE TEST-I

PROGRAM : B.E / CSE
YEAR/SEM : I/I
SUBJECT CODE & TITLE : MA8151-ENGINEERING MATHEMATICS-I
DATE : 25.09.2019

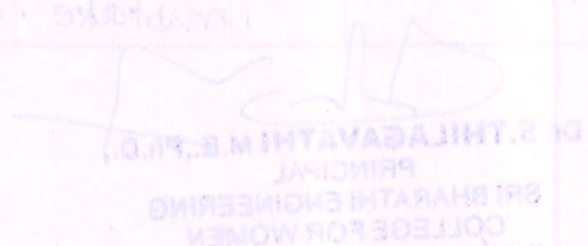| SI .NO	REG.NO	NAME	SIGNATURE
1	912619104002	ANUSUYA S	S.Anusya
2	912619104006	FAHIMA F	F. Fahima
3	912619104008	GAYATHRI DEVI.G	AB
4	912619104013	MUTHU MEENAKSHI M	M.amthgrulall
5	912619104014	NIROSHIKA R	
6	912619104015	NISHA D	D.Aleef
7	912619104017	PARAMESHWARI S	S.Darameshwari
8	912619104018	PRIYANGA.R	AB
9	912619104021	ROOPINA R	R.Roopna
10	912619104023	SANTHI D	D.Santhi
11	912619104024	SARANYA C	C.Saranya
12	912619104026	SINEKA.K	AB
13	912619104028	SRIJA.T	AB
14	912619104029	SURIYA JOTHI S	S.Suriya jothi

SIGNATURE OF THE FACULTY

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PUDUKKOTTAI - 622 303.

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KAIKKURICHI,PUDUKKOTTAI-622 303
ACADEMIC YEAR 2019-2020--- ODD SEMESTER
STUDENTS MARK STATEMENT –CO BASED
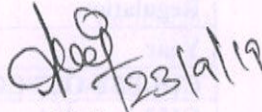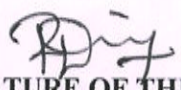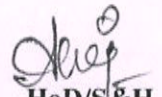### SECTION -A
RETEST FOR CYCLE TEST-I

PROGRAM   : B.E / CSE
YEAR/SEM   : I/I
SUBJECT CODE & TITLE : MA8151-ENGINEERING MATHEMATICS-I
DATE   : 25.09.2019

SI .NO	REG.NO	NAME	CO1 (24)	CO2 (26)	TOTAL (50)	MARKS (100)
1	912619104002	ANUSUYA S	15	16	31	63
2	912619104006	FAHIMA F	14	19	33	66
3	912619104008	GAYATHRI DEVI.G	-	-	AB	AB
4	912619104013	MUTHU MEENAKSHI M	16	15	31	63
5	912619104014	NIROSHIKA R	16	14	30	60
6	912619104015	NISHA D	12	13	25	51
7	912619104017	PARAMESHWARI S	17	14	31	62
8	912619104018	PRIYANGA.R	-	-	AB	AB
9	912619104021	ROOPINA R	16	15	31	63
10	912619104023	SANTHI D	17	14	31	63
11	912619104024	SARANYA C	14	16	30	60
12	912619104026	SINEKA.K	-	-	AB	AB
13	912619104028	SRIJA.T	-	-	AB	AB
14	912619104029	SURIYA JOTHI S	18	14	32	65

MARK RANGE:

<20	20-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
-	-	-	-	-	10	-	-	-

Total Number of Students Present	10
Total Number of Students Absent	04
Total Number of Candidates Pass	10
Total Number of Candidates Fail	NIL
Percentage of Pass	100%

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KAIKKURICHI

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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

DEPARTMENT OF SCIENCE AND HUMANITIES

ACADEMIC YEAR 2019 – 2020 (ODD SEMESTER)

FINAL INTERNAL STUDENTS MARK STATEMENT(Out of 20)

SUBJECT CODE &TITLE: MA8151 &Engineering Mathematics-I

YEAR/SEM   : I/I

SECTION/BRANCH   : A / CSE

S.NO	REG NO	STUDENT NAME	TOTAL (20)
1.	912619104001	ANNAPOORANI M	15
2.	912619104002	ANUSUYA S	14
3.	912619104003	ARUNNAVAMEENA A	15
4.	912619104004	DAYANA P	14
5.	912619104005	DHARSHINI D	15
6.	912619104006	FAHIMA F	15
7.	912619104007	FAHMIDHA B	15
8.	912619104009	GULNAS FATHIMA S	18
9.	912619104010	HELAN J	18
10.	912619104011	KEERTHANA R	16
11.	912619104012	MUTHULAKSHMI G	16
12.	912619104013	MUTHU MEENAKSHI M	14
13.	912619104014	NIROSHIKA R	14
14.	912619104015	NISHA D	11
15.	912619104016	NITHYA M	16
16.	912619104017	PARAMESHWARI S	14
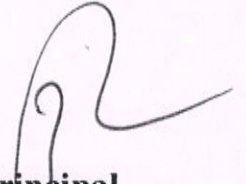
Dr **S.THILAGAVATHI** M.E.,Ph.D.,
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17.	912619104019	RANJANI K	15
18.	912619104020	RILWANA PARVEEN J	18
19.	912619104021	ROOPINA R	14
20.	912619104022	SANDHIYA B	16
21.	912619104023	SANTHI D	14
22.	912619104024	SARANYA C	14
23.	912619104025	SARUMATHI A	19
24.	912619104027	SNEHA R	16
25.	912619104029	SURIYA JOTHI S	14

Faculty Incharge

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PUDUKKOTTAI - 622 303.

Principal

PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT

Dr. **S.THILAGAVATHI** M.E.,Ph.D.,
PRINCIPAL
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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

DEPARTMENT OF SCIENCE AND HUMANITIES

ACADEMIC YEAR 2019 – 2020 (ODD SEMESTER)

ANNA UNIVERSITY RESULT STATEMENT NOV/DEC-2019

SUBJECT CODE &TITLE: MA8151& Engineering Mathematics-I

YEAR/SEM : I/I

SECTION/BRANCH : A/ CSE

S.NO	REG NO	STUDENT NAME	GRADE
1.	912619104001	ANNAPOORANI M	U
2.	912619104002	ANUSUYA S	U
3.	912619104003	ARUNNAVAMEENA A	U
4.	912619104004	DAYANA P	U
5.	912619104005	DHARSHINI D	U
6.	912619104006	FAHIMA F	U
7.	912619104007	FAHMIDHA B	B$^+$
8.	912619104009	GULNAS FATHIMA S	B
9.	912619104010	HELAN J	B
10.	912619104011	KEERTHANA R	U
11.	912619104012	MUTHULAKSHMI G	U
12.	912619104013	MUTHU MEENAKSHI M	U
13.	912619104014	NIROSHIKA R	U
14.	912619104015	NISHA D	UA
15.	912619104016	NITHYA M	U
16.	912619104017	PARAMESHWARI S	U

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Kaikkurich. - 322 303, Pudukkotte Dt.

17.	912619104019	RANJANI K	U
18.	912619104020	RILWANA PARVEEN J	B⁺
19.	912619104021	ROOPINA R	U
20.	912619104022	SANDHIYA B	U
21.	912619104023	SANTHI D	U
22.	912619104024	SARANYA C	U
23.	912619104025	SARUMATHI A	U
24.	912619104027	SNEHA R	B
25.	912619104029	SURIYA JOTHI S	U

Faculty Incharge

HoD/S&H

Principal

SRI BHARATHI ENGINERRING COLLEGE FOR WOMEN, KAIKKURICHI

Department of Science and Humanities

Internal Assessment -Attainment of Course Outcomes (Through Direct Assessment)

ACADEMIC YEAR - 2019 - 20			BATCH		2019 - 2023				
COURSE CODE/TITLE	MA8151(C102) / ENGINEERING MATHEMATICS -I	COURSE OUTCOME	1	2	3	4	5	6
YEAR/SEM	I / I	TARGET(%)	65	65	65	65	65	65
COURSE COORDINATOR	R.DIVYA	TOTAL STRENGTH	25					

ATTAINMENT LEVEL

Level	Range
1	UP TO 60% of the students scored more than target
2	61 - 79% of the students scored more than target
3	80% & ABOVE of the students scored more than target

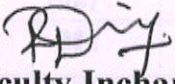| S.NO	REG NO	NAME OF THE STUDENT	IAT 1 - MARKS ALLOTED						IAT 2 - MARKS ALLOTED						IAT 3 - MARKS ALLOTED						Assignment / Mini Project /Tutorial / Seminar						TOTAL COURSE OUTCOME					
			C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6
			60	40							40	60							60	40		10	10			10	60	50	50	60	60	50
1	912619104001	ANNAPOORANI M	42	28							34	51							51	34		8	8			9	42	36	42	51	51	43
2	912619104002	ANUSUYA S	42	28							32	48							46	31		7	8			8	42	35	40	48	46	39
3	912619104003	ARUNNAVAMEENA A	46	31							30	45							54	36		8	8			8	46	39	38	45	54	44
4	912619104004	DAYANA P	42	28							28	42							47	31		8	8			7	42	36	36	42	47	38
5	912619104005	DHARSHINI D	45	30							26	39							51	34		7	8			8	45	37	34	39	51	42
6	912619104006	FAHIMA F	46	30							30	45							47	31		7	7			7	46	37	37	45	47	38
7	912619104007	FAHMIDHA B	42	28							29	43							54	36		9	8			9	42	37	37	43	54	45
8	912619104009	GULNAS FATHIMA S	53	35							35	53							57	38		9	9			8	53	44	44	53	57	46
9	912619104010	HELAN J	49	33							31	46							48	32		9	8			9	49	42	39	46	48	41
10	912619104011	KEERTHANA R	57	38							26	40							49	33		8	8			9	57	46	34	40	49	42
11	912619104012	MUTHULAKSHMI G	50	33							28	42							54	36		8	8			8	50	41	36	42	54	44
12	912619104013	MUTHU MEENAKSHI M	38	25							24	36							48	32		7	8			8	38	32	32	36	48	40
13	912619104014	NIROSHIKA R	36	24							24	36							52	34		8	8			8	36	32	32	36	52	42
14	912619104015	NISHA D	31	20							26	39							37	25		7	8			7	31	27	34	39	37	32
15	912619104016	NITHYA M	48	32							26	39							55	37		8	8			7	48	40	34	39	55	44
16	912619104017	PARAMESHWARI S	37	25							28	42							50	34		8	8			7	37	33	36	42	50	41
17	912619104019	RANJANI K	45	30							25	37							51	34		8	9			9	45	38	34	37	51	43
18	912619104020	RILWANA PARVEEN J	58	39							32	48							58	38		9	8			8	58	48	40	48	58	46

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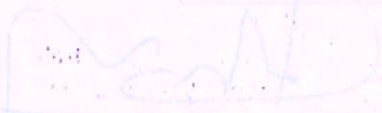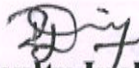| S.No	Reg. No	Name																										
19	912619104021	ROOPINA R	42	28					25	38					49	33	8	8			8	42	36	33	38	49	41
20	912619104022	SANDHIYA B	53	35					26	40					48	32	8	8			7	53	43	34	40	48	39
21	912619104023	SANTHI D	38	25					24	36					51	34	8	8			8	38	33	32	36	51	42
22	912619104024	SARANYA C	42	28					25	37					46	31	8	7			8	42	36	32	37	46	39
23	912619104025	SARUMATHI A	60	40					38	57					58	38	8	8			8	60	48	46	57	58	46
24	912619104027	SNEHA R	52	35					28	42					49	33	9	9			8	52	44	37	42	49	41
25	912619104029	SURIYA JOTHI S	39	26					30	45					50	33	8	8			8	39	34	38	45	50	41

CO's Target Value	39	33	33	39	39	33
No. of Students scored above CO's Target Value	20	22	21	19	24	24
Percentage of Students scored above Target	80	88	84	76	96	96
CO Attainment	3	3	3	2	3	3
CO attainment Values to plot the Graph	3	3	3	2	3	3
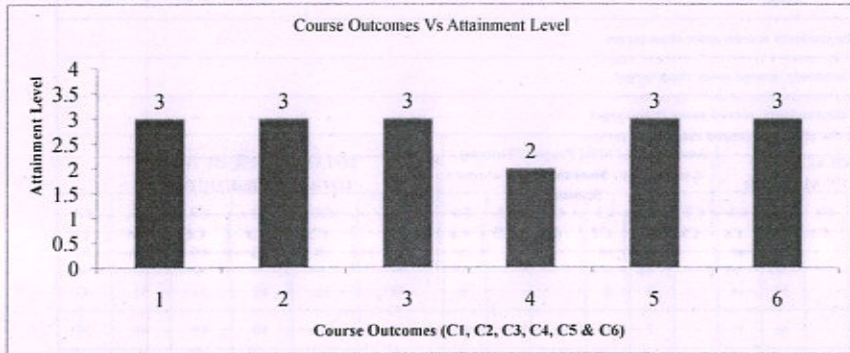
Course Outcomes Vs Attainment Level

Attainment Level — Course Outcomes (C1, C2, C3, C4, C5 & C6)

Faculty Incharge

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SRI BHARATHI ENGINEERING FOR WOMEN
DEPARTMENT OF S&H
COURSE OUTCOME ATTAINMENT - UNIVERSITY EXAMINATION
ACADEMIC YEAR : 2019 - 2020 (ODD SEM)

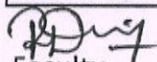YEAR /SEM: I CSE / I   Batch:2019-2023

SUBJECT :MA8151(C102) / ENGINERRING MATHEMATICS I

CO Attainment Level: 1 - (UPTO 60%)   2- (61%-79%)   3-(80% and Above)

TOTAL STRENGTH :   25

S.NO	Register No	NAME	Univ.
1	912619104001	ANNAPOORANI M	U
2	912619104002	ANUSUYA S	U
3	912619104003	ARUNNAVAMEENA A	U
4	912619104004	DAYANA P	U
5	912619104005	DHARSHINI D	U
6	912619104006	FAHIMA F	U
7	912619104007	FAHMIDHA B	B^+
8	912619104009	GULNAS FATHIMA S	B
9	912619104010	HELAN J	B
10	912619104011	KEERTHANA R	U
11	912619104012	MUTHULAKSHMI G	U
12	912619104013	MUTHU MEENAKSHI M	U
13	912619104014	NIROSHIKA R	U
14	912619104015	NISHA D	UA
15	912619104016	NITHYA M	U
16	912619104017	PARAMESHWARI S	U
17	912619104019	RANJANI K	U
18	912619104020	RILWANA PARVEEN J	B^+
19	912619104021	ROOPINA R	U
20	912619104022	SANDHIYA B	U
21	912619104023	SANTHI D	U
22	912619104024	SARANYA C	U
23	912619104025	SARUMATHI A	U
24	912619104027	SNEHA R	B
25	912619104029	SURIYA JOTHI S	U
No. of O Grade			0	0
No. of A+ Grade			0	0
No. of A Grade			0	0
No. of B+ Grade			2	2
No. of B Grade			3	3
No. of U Grade			19	19
No. of UA Grade			1	1
Target for course outcome Attainment			60	25
No of students above the target			5	
CO-Attainment University (%)			20.00	

Faculty

Overall Attainment Sheet – COs - POs & PSOs attainment calculation

CO	CO-Attainment Internal (CO-INT) (Avg. Attainment of All section) (%)	CO-Attainment University (CO-UNI) (Avg. Attainment of All section) (%)	Direct CO Attainment (0.20xCO-INT + 0.80xCO-UNI) (%)	CO Attainment Level
C102.1	80.0	20.00	32.0	1
C102.2	88.0	20.00	33.6	1
C102.3	84.0	20.00	32.8	1
C102.4	76.0	20.00	31.2	1
C102.5	96.0	20.00	35.2	1
C102.6	96.0	20.00	35.2	1

Closure of the Quality Loop:

CO	CO-Target for Academic Year						CO Attainment Gap	Action Proposed to
	14-15		15-16		16-17			
C102.1	65	79.71	65	69	65	32.0	-	-
C102.2	65	79.71	65	71.17	65	33.6	-	-
C102.3	65	79.71	65	63.15	65	32.8	-	-
C102.4	65	79.71	65	75.11	65	31.2	-	-
C102.5	65	79.71	65	73.57	65	35.2	-	-
C102.6	65	79.71	65	68.44	65	35.2	-	

Expected CO-PO Level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C102.1	3	2	2	2	-	-	-	-	-	2	-	2	-	2
C102.2	3	2	2	2	-	-	-	-	-	2	-	2	-	2
C102.3	3	2	2	2	-	-	-	-	-	2	-	2	-	2
C102.4	3	2	2	2	-	-	-	-	-	2	-	2	-	2
C102.5	3	2	2	2	-	-	-	-	-	2	-	2	-	2
C102.6	3	2	2	2	-	-	-	-	-	2	-	2	-	2
C102	3	2	2	2	-	-	-	-	-	2	-	2	-	2

PO Attainment Level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C102.1	1	0.67	0.67	0.67	-	-	-	-	-	0.67	-	0.67	-	0.67
C102.2	1	0.67	0.67	0.67	-	-	-	-	-	0.67	-	0.67	-	0.67
C102.3	1	0.67	0.67	0.67	-	-	-	-	-	0.67	-	0.67	-	0.67
C102.4	1	0.67	0.67	0.67	-	-	-	-	-	0.67	-	0.67	-	0.67
C102.5	1	0.67	0.67	0.67	-	-	-	-	-	0.67	-	0.67	-	0.67
C102.6	1	0.67	0.67	0.67	-	-	-	-	-	0.67	-	0.67	-	0.67
C102	1	0.67	0.67	0.67	-	-	-	-	-	0.67	-	0.67	-	0.67
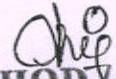
Attainment of POs and PSOs:

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C102	3	2	2	2	-	-	-	-	-	2	-	2	-	2
Attainment	1	0.67	0.67	0.67	-	-	-	-	-	0.67	, -	0.67	-	0.67

Comments by Program Coordinato	1.	Remarks by HoD	
	2		

Name and Signature
of the Faculty Member

[R.DIVYA]

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