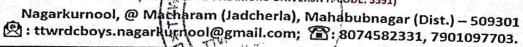




(AFFFIATED TO PALAMURU UNIVERSITY. CODE: 3391)





PROGRAM OUTCOMES FOR ACADEMIC YEAR 2017-18

DEPARTMENT OF MATHEMATICS SEMESTER-I

NAME OF THE PAPER	MATHEMATICS-I	
PAPER CODE	DSC-1A	
PAPER NAME	Differential & Integral Calculus	
Learning Objective	The course is aimed at exposing the students to some basic	
Learning Outcomes	notions in differential calculus Explain the relationship between the derivative of a function as a function and the notion of the derivative as the slope of the tangent line to a function at a point. 1) Compare and contrast the ideas of continuity and differentiability. 2) To inculcate to solve algebraic equations and inequalities involving the sequence root and modulus function 3) To able to calculate limits in inderminate forms by a repeated use of L' Hospital rule. 4) To know the claim rule and use it to find derivatives of composite functions. 5) To find maxima and minima, critical points and inflection points of functions and to determine the concavity of curves. 6) To able to evaluate integrals of rational functions by partial fractions.	



DEPARTMENT OF MATHEMATICS SEMESTER-II

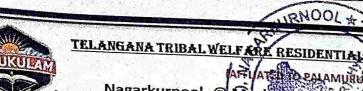
SEMESTER-II
MATHEMATICS-II
DSC - 1B
Differential Equations
 Evaluate first order differential equations including separable, homogeneous, exact, and linear. Show existence and uniqueness of solutions. Solve second order and higher order linear differential equations.
4. Create and analyse mathematical models using higher order differential equations to solve
application problems such as harmonic oscillator and circuits. 5. Solve differential equations using variation of parameters
Solve linear systems of ordinary differential equations
After the completion of the course, Students will be able to 1. Student will be able to solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous, or Bernoulli cases. 2. Student will be able to find the complete solution of a nonhomogeneous differential equation as a linear combination of the complementary function and a particular solution. 3. Student will be introduced to the complete solution of a nonhomogeneous differential equation with constant coefficients by the method of undetermined coefficients. 4. Student will be able to find the complete solution of a differential equation with constant coefficients by variation of parameters. 5. Student will have a working knowledge of basic application problems described by second order linear differential equations with constant coefficients.

DEPT. OHODATHEMATICS TTWRDC (M), NAGARKURING 3391-PALAMURU UNIVERSITY

IQAC Co-ordinator

IQAC Co-Ordinator TTWR Degree & PG C ollege(M) College Code: 3391 (P.U.) Nagarkurunogl-509209 (TS) Principal

Principal
TTWR Degree College (B,
Nagar Kurnool - 509 209



TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE (MEN) NAGARKURNOOL

AFTIATE TO BOLAMURE UNIVERSITY. CODE: 3391)

Nagarkurnool, @ Macharam (Jadcherla), Mahabubnagar (Dist.) – 509301 : ttwrdcboys.nagarkurnool@gmail.com; : 8074582331, 7901097703.





PROGRAM OUTCOMES FOR ACADEMIC YEAR 2018-19

DEPARTMENT OF MATHEMATICS SEMESTER-I

NAME OF THE PAPER PAPER CODE	MATHEMATICS-I
	DCC 1A
PAPER NAME	Differential & Integral Calculus
International principal strategy	
Learning Objective	notions in differential calculus
Learning Outcomes	Explain the relationship between the derivative of a function as a function and the notion of the derivative as the slope of the tangent line to a function at a point. 1) Compare and contrast the ideas of continuity and differentiability. 2) To inculcate to solve algebraic equations and inequalities involving the sequence root and modulus function 3) To able to calculate limits in indeterminate forms by a repeated use of L' Hospital rule. 4) To know the claim rule and use it to find derivatives of composite functions. 5) To find maxima and minima, critical points and inflection points of functions and to determine the concavity of curves. 6) To able to evaluate integrals of rational functions by
(RATES) IN THE STORY	
John Share de problement	
modium sku d film.	

DEPARTMENT OF MATHEMATICS SEMESTER-III

NAME OF THE PAPER	B.Sc (MATHEMATICS)
PAPER CODE	DSC-1C
PAPER NAME	REAL ANALYSIS-III
Calconia C	he student will:
	1. Define the real numbers, least upper bounds
	and the triangle inequality.
The state of the s	2. Define functions between sets; equivalent
	sets; finite, countable and uncountable sets.
Learning Objective	Recognize convergent, divergent, bounded,
assist broat provider a contract profession	Cauchy and monotone sequences.
I was to	3. Calculate the limit superior, limit inferior, and
Author The state on the contract	the limit of a sequence.
forest the more and a sum of	4. Recognize alternating, convergent,
3 70 1 1 1 1 1 1 1 1	conditionally and absolutely convergent series.
AT YOU APPEAR TO JAMES SIDE STORY	5. Determine if subsets of a metric space are
	open, closed, connected, bounded, totally
estima en el aparticipa de describirado	bounded and/or compact.
197 pill allabation in a formani	6. Determine if a function on a metric space is
a ya rama sara na lafan malawan ya	discontinuous, continuous, or uniformly
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	continuous
So the Armenton Complete Son of the	After the completion of the course,
Part of a few many and total buff of (Eule	Students will be able to 1. describe fundamental
at a service of the many first angeling	properties of the real numbers that lead to the formal development of real analysis. 2.
	comprehend rigorous arguments
	theory underpinning real analysis. 3.
	demonstrate an understanding of limits and
LEARNING OUTCOMES	how they are used in sequences, series,
22/Math to OUTCOMES	differentiation and integration, 4, construct
	rigorous mathematical proofs of basic results in
	real analysis. 5. appreciate how abstract ideas
	and rigorous methods in mathematical analysis
	can be applied to important practical problems.

DEPARTMENT OF MATHEMATICS SEMESTER-II

NAME OF THE PAPER	MATHEMATICS-II
PAPER CODE	DSC – 1B
PAPER NAME	Differential Equations
	Evaluate first order differential equations
	including separable, homogeneous, exact, and
	linear.
	2. Show existence and uniqueness of solutions.
Applicate the first state of the	3. Solve second order and higher order linear
r man as to the best the help	differential equations.
Learning Objective	4. Create and analyse mathematical models
a ' all and the following all the article	using higher order differential equations to
a sil altered except so	solve application problems such as harmonic
April 1	oscillator and circuits. 5. Solve differential
Teaching a community of guarden first re-	equations using variation of parameters
	6. Solve linear systems of ordinary differential
Birth of calebra or mally described	equations
	After the completion of the course, Students
The state of the s	will be able to
1 - Strate in realizability from the first population	1. Student will be able to solve first order
. South Sire, and Links to Authorize Andrews	differential equations utilizing the standard
and the state of t	recliniques for separable, exact, linear,
a man material resident and make min	nomogeneous, or Bernoulli cases.
127 1787 1782 1782	2. Student will be able to find the complete
and make Bottle and any	solution of a nonhomogeneous differential
Learning Outcomes	equation as a linear combination of the
Learning Outcomes	complementary function and a particular solution.
this particular is the property and the man	3. Student will be introduced to the complete
a conformation of	solution of a nonhomogeneous differential
	equation with constant coefficients by the
	method of undetermined coefficients.
A second	4. Student will be able to find the complete
	solution of a differential equation with constant
ALE LETTE -	coefficients by variation of parameters.
	5. Student will have a working knowledge of
	basic application problems described by second
	order linear differential equations with constant
	coefficients.
	H

DEPARTMENT OF MATHEMATICS SEMESTER-IV

PROGRAM SHITCHARES FOR ACADHAM YEAR 2018-19

PAPER CODE	Million - Restrict of the
PAPER NAME	DSC-1D
EXTRAINE .	Algebra
ni stavidukte kresinininini	
Learning Objective	Present the relationships between abstract algebraic structures with familiar numbers systems such as the
endum treate, of the or	micegers and real numbers.
Sylledite Nie June 1 A	2. Present concepts of and the relationships between
- The list as the river	operations satisfying various properties (e.g.
West of a color of	commutative property).
Are, gi	3. Present concepts and properties of various about
The state of the state of the	i a dedica.
Andrew Commence	the ability to form and evaluate conjecture
	to Steel the completion of the course, Students will be able
	1. Understand the importance of algebraic properties
SHERWALL L	2. Extend group structure to finite permutation groups
Learning Outcomes	3. Generate groups given specific conditions
winaters in as	5. Understand the three major concrete models as
i sungrection in an a	boolean algebra: the algebra of sets, the algebra of
and the same of th	electrical circuits, and the algebra of logic.
y Million to survivor 1 p. s	
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DEPT. OF THE MATICS
TTWRDC (M), NAGARKURNO
3391-PALAMURU UNIVERSITY

IQAC Co-ordinator

IQAC Co-Ordinator

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TTWR Degree & PG C ollege(M)
College Code: 3381 (P.U.)
Nagarkurunool-509209 P

Principal
Principal
TTWR Degree College (B,

Nagar Kurnool - 509 209



TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE (MEN) NAGARKURNOOL

(AFFLIATED TO PALAMURU UNIVERSITY. CODE: 3391)

Nagarkurnool, @ Macharam (ladcherla), Mahabubnagar (Dist.) – 509301 : ttwrdcboys.nagarkurnbol@gmail.com; : 8074582331, 7901097703.



PROGRAM OUTCOMES FOR ACADEMIC YEAR 2019-20

DEPARTMENT OF MATHEMATICS SEMESTER-I regress affortally office and tomost

NAME OF THE PAPER PAPER CODE	MATHEMATICS-I
PAPER NAME	DSC - 1A
TH EK NAIVIE	Differential & Integral Calculus
Applicate production of the control of	* A S
 III I TOUTH In the second of 	managed augment
Learning Objective	The course is aimed at exposing the students to some basic
	notions in differential calculus
Standay 1 - 12 February	Explain the relationship between the derivative of a facility
g conferm his so a	as a ranction and the notion of the derivative as the slave of
	the tangent file to a function at a noint
Consideration and the	1) Compare and contrast the ideas of continuity and
	differentiability.
 7.5-40 Sheddinghalp. 	, and included to solve digebraic equations and including
hand Mar Talk and great part	modulus function
	3) To able to calculate limits in inderminate forms by a
Learning Outcomes	repeated use of L. Hospital rule
Learning Outcomes	
 Market of persons 	composite functions, 5) to find maxima and minima
	points and infection points of functions and to determine
d minor quarrances	and conteavity of curves.
To add the state of the state o	6) To able to evaluate integrals of rational functions by
V 11 378 713	partial fractions.
Mild sel element and a second	Lander St.
Mill wildley retent as to	A Abres de America
with hoter was an	The Control of the Co

District His sense of Rivernal the resumo. ्वासार महिला स्थानिक वर्ष स्थानिक वर्ष सम्बद्धाः Secretary will have a working growned as Se a ste audication problems described by second arder linear differential equations with equation

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DEPARTMENT OF MATHEMATICS SEMESTER-II

NAME OF THE PAPER	MATHEMATICS-II
PAPER CODE	DSC - 1B
PAPER NAME	Differential Equations 1. Evaluate first order differential equations including separable, homogeneous, exact, and
	linear. 2. Show existence and uniqueness of solutions. 3. Solve second order and higher order linear
Learning Objective	4. Create and analyse mathematical models using higher order differential equations to
taken specification with a series of the ser	oscillator and circuits. 5. Solve differential
To appropriate sudget with left to other	6. Solve linear systems of ordinary differential equations
Emilyyan nyoni naybundi in	will be able to
german entre com a provinción de la partir de la partir dela partir de la partir dela partir del la partir de la partir del la partir dela partir del la partir dela part	differential equations utilizing the standard
the result to the first the second	homogeneous, or Bernoulli cases. 2. Student will be able to find the complete
	equation as a linear combination of the
Learning Outcomes	complementary function and a particular solution. 3. Student will be introduced to the complete
	solution of a nonhomogeneous differential equation with constant coefficients by the method of undetermined coefficients.
	4. Student will be able to find the complete solution of a differential equation with constant coefficients by variation of parameters.
	5. Student will have a working knowledge of basic application problems described by secon order linear differential equations with constant
	coefficients.



DEPARTMENT OF MATHEMATICS SEMESTER-III

PERCENT OFFICINGE FOR ACADEMIC YEAR 2919-29

NAME OF THE PAPER	B.Sc (MATHEMATICS)
PAPER CODE	* \$1 L AV . ⇒
	DSC - 1C
PAPER NAME	REAL ANALYSIS-III The student will:
all in the between a creat discharge .	
The parties of the product of the parties of the pa	
The second	and the second second
Beilians die anderen bestellt er	
20-34 e 30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	sets; finite, countable and uncountable sets.
	0 , 0 ,
pistippis and the light out in 17th	Cauchy and monotone sequences.
	3. Calculate the limit superior, limit inferior, and
Learning Objective	
gulavid 21 i i byr foti i malb ei	4. Recognize alternating, convergent,
propriation of the CAR	conditionally and absolutely convergent series.
r side ad few terms for more part of the	5. Determine if subsets of a metric space are
	open, closed, connected, bounded, totally
Springly Section 1 through	bounded and/or compact.
a per e colonos como en 194 (194) (194)	6. Determine if a function on a metric space is
Carl, gargetragenessy, Just to Stelling	discontinuous, continuous, or uniformly
-0.0	continuous.
endurano ifficaça unifi	After the completion of the course, Students
100,40,00 to 1,471.1471.15	will be able to
to ship or ship in stagether of	1. Describe fundamental properties of the real
to prosper a melta crispinal	numbers that lead to the formal development
4 the desirable and the	of real analysis.
	2. Comprehend rigorous arguments developing
	the theory underpinning real analysis.
	3. Demonstrate an understanding of limits and
	how they are used in sequences, series,
LEARNING OUTCOMES	differentiation and integration.
	4. Construct rigorous mathematical proofs of
	basic results in real analysis.
	5. Appreciate how abstract ideas and rigorous
	methods in mathematical analysis can be
	applied to important practical problems.

PROGRAM OUTCOMES FOR ACADEMIC YEAR 2019-20 DEPARTMENT OF MATHEMATICS

CODE	DSC - 1D	7 13
PAPER CODE	Algebra	
PAPER NAME	hotween abstract algebra	iic
	Present the relationships between abstract algebra structures with familiar numbers systems such as the	
Learning Objective	integers and real numbers.	
trolegible, service and and	operations satisfying various property	
propries and it are a	3. Present concepts and properties of various digestrates	3
South and the state of	structures. 4. Discuss the importance of algebraic properties relati	ve
· All Mod marks on	to working within various number systems. 5. Develop	
Project Charles (Charles)	the ability to form and evaluate conjectures	
90 . F.Jong - A	After the completion of the course, Students will be abl	e
regard manual a front	to	- 1
	1. Understand the importance of algebraic properties	- 1
Hazara Alemania Berna	with regard to working within various number systems.	1
Target light for all the later of	2. Extend group structure to finite permutation groups	
	(Cayley's Theorem).	
arning Outcomes	3. Generate groups given specific conditions.	
	4. Investigate symmetry using group theory.	1
For TELL INTERNATION	5. Understand the three major concrete models of	1
Immediately of the plants of the	Boolean algebra: the algebra of sets, the algebra of electrical circuits, and the algebra of logic.	
principal indicated in the same of the same	gal ers #)	
Late Section 17 to		1

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DEPARTMENT OF MATHEMATICS SEMESTER-V

PROGRAM NUTSONIES FOR ACTORNING VERN 2019-20-6

Paper -V

NAME OF THE PAPER	B.Sc (MATHEMATICS)
PAPER CODE	DSC-E
PAPER NAME	Linear Algebra
The second of the second secon	1.Solve systems of linear equations,
dedi. Nyaétata liighté ét. 3 To ordes sand	
a unit of the the sound or aver a standar	and algenraically
Althorate Season to the season at the season	3 Recognize the concents of the terms
I despite our many to a manufacture and value -	span, linear independence, basis, and
Learning Objective	dimension, and apply these concepts to
	various vector spaces and subspaces,
Land the Control of t	4. Use matrix algebra and the related
Be steer to be the comment of the co	matrices to linear transformations,
	5. Compute and use determinants,
i Dî yî flahtetind is Schiller nji anjir sere	
Trially, well-user the user for a li	eigenvalues
April James - priceducinaria	7. Determine and use orthogonality, and
Control of the second of the s	8. Use technological tools such as
h 4	computer algebra systems or graphing
and a first to be a second and a second	calculators for visualization and
liam in a shikum salgeran sa sanu asalar	calculation of linear algebra concepts.
	After the completion of the course,
	Students will be able to
	1. Identify and construct linear
	transformations of a matrix.
	2. Characterize linear transformations as
	onto, one-to-one.
LEADADIG OFFICE (FG	3. Solve linear systems represented as
LEARNING OUTCOMES	linear transforms.
	4. Express linear transforms in other
- 1	forms, such as as matrix equations, and
The area of the second	vector equations.
C. Tale	5. Characterize a set of vectors and linear
	systems using the concept of linear
	independence

DEPARTMENT OF MATHEMATICS SEMESTER-V Paper –VI

	B.Sc (MATHEMATICS)
NAME OF THE PAPER	DSE – 1F/C
PAPER CODE	a l'I amotri/
PAPER NAME	i i i i i i i i i i i i i i i i i i i
anonaupatanu 10 ta a marin auto-	- I is Hunorhola Fillipse etc. 2. To and
The state of the property of the state of th	the concepts & advance topics related to two &
L. T. planethire's	three dimensional geometry.
Australia programment de literatura de la composição de l	2. To study the applications of conics.
Learning Objective	4. To study the application of Sphere, cone and
or dreament and little Party to	cylinder.
generally by the production of	5. To study how to trace the curve.
LEARNING OUTCOMES	After the completion of the course, Students will
	be able to
Sandralder i Paren er er, enger ergagnyn e	Understand geometrical terminology for
E. See her state to the second section of the second	angles, triangles, quadrilaterals and circles.
Land the special section assume.	2. Measure angles using a protractor.
the state of the s	3. Use geometrical results to determine unknown
Delicated School of Principles of the a	angles.
Full page Table 10 - 000 0 F	4. Recognise line and rotational symmetries.
and the important of the second section (A)	5. Find the areas of triangles, quadrilaterals and
	circles and shapes based on these.

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DEPARTMENT OF MATHEMATICS SEMESTER-VI

Paper -VII

NAME OF THE PAPER	B.Sc (MATHEMATICS)
APER CODE	DSE VI(A)
PAPER NAME	Numerical Analysis
	1. The course will also develop an understanding of the elements of error analysis for numerical methods and certain proofs. 2. The main objective of this course is to provide students
migration task three trivials of the terms of the control of the c	with an introduction to the field of numerical
Learning Objective	The production of the second o
realiting opjective	methods to solve interpolation based problems.
A second of the Asset In the Asset Internal	11 1
The state of the s	
LEARNING OUTCOMES	After the completion of the course, Students will be able to 1. Understand the theoretical and practical aspects of the use of numerical analysis. 2. Proficient in implementing numerical methods for a variety of multidisciplinary applications. 3. Establish the limitations, advantages, and disadvantages of numerical analysis. 4. Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations. 5. Understand of common numerical analysis and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.

DEPARTMENT OF MATHEMATICS SEMESTER-VI

Paper -VIII

	Pape	er –viii
	NAME OF THE PAPER	B.Sc (MATHEMATICS)
	PAPER CODE	DSE-1F/B
	PAPER NAME	
TEUNS 1	Learning Objective	Concepts like gradient, divergence, curl and their physical relevance will be
	LEARNING OUTCOMES	taught.
		is discuted additional and an arrangement of the second se
Arve istrus	ne contractor and and the m	problems of physics.
	- the factor are an let an exist to allow	1. U 1.
me plus	CALLEY FOR THE CONTRACT	

TTWRDC (M), NAGARKURNC 3391-PALAMURU UNIVERSITY Cr.11.11

IQAC Co-ordinator

IQAC Co-Ordinator
TTWR Degree & PG C ollege(M)
College Code: 3391 (P.U.)
Issaarkurunool-509209

Principal

Principal TTWR Degree College (B). Nagar Kurnool - 509 209



SIDENTIAL DEGREE COLLEGE (MEN) NAGARKURNOOL TELANGANA TRIBAL WELFARE





MORU UNIVERS PROGRAM OUTCOMES FOR ACADEMIC YEAR 2020-21

DEPARTMENT OF MATHEMATICS SEMESTER-I

NAME OF THE PAPER	MATHEMATICS-I
PAPER CODE	DSC - 1A
PAPER NAME	Differential & Integral Calculus
milian transmission	serious from the contract of t
Learning Objective	The course is aimed at exposing the students to some basic notions in differential calculus
Annual Control of	as a function and the notion of the derivative as the slope of the tangent line to a function at a point.
at the Survey will be	Compare and contrast the ideas of continuity and differentiability.
estars hvill avfort re Nash val nash goldilla Vitana Jihana Jil	involving the sequence root and modulus function 3) To able to calculate limits in inderminate forms by a
Learning Outcomes	4) To know the claim rule and use it to find derivatives of composite functions. 5) To find maxima and minima, critical points and inflection points of functions and to determine the concavity of curves.
tear SPELL from It A	6) To able to evaluate integrals of rational functions by partial fractions.
· Lest sont Participan	
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DEPARTMENT OF MATHEMATICS SEMESTER-II

NAME OF THE PAPER	MATHEMATICS-II
NAME OF THE PAPER PAPER CODE	DSC - 1B
PAPER NAME	Differential Equations Differential Equations
PAPER NAME	Differential Equations 1. Evaluate first order differential equations including separable, homogeneous, exact, and
Learning Objective	linear. 2. Show existence and uniqueness of solutions 3. Solve second order and higher order linear
	oscillator and circuits. 5. Solve differential equations using variation of parameters 6. Solve linear systems of ordinary differential
earning Outcomes	After the completion of the course, Students will be able to 1. Student will be able to solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous, or Bernoulli cases. 2. Student will be able to find the complete solution of a nonhomogeneous differential equation as a linear combination of the complementary function and a particular

DEPARTMENT OF MATHEMATICS SEMESTER-II

PAPER CODE	MATHEMATICS-II
PAPER NAME	DSC - 1B
	Differential Equations
almord segal rest and to the contraction	1. Evaluate first order differential equations
	including separable, homogeneous, exact, and
Matter for a temperature expension of the	linear.
The damen of the collection of the	2. Show existence and uniqueness of solutions
Arrive or years and he greater and	3. Solve second order and higher order linear
	differential equations.
Learning Objective	
Different of the	using higher order differential equations to
Programme and Alley orders a feet	solve application problems such as harmonic
I to be brokened graduate has grant	oscillator and circuits. 5. Solve differential
	equations using variation of parameters
white here the lands and here	6. Solve linear systems of and the systems
	6. Solve linear systems of ordinary differential equations
a completely and high a real annihilation is the graph to a	
la tribue to attentify or graners	
THE COURSE OF STREET	
110 H 12 Co.	1. Student will be able to solve first order
THE HARD AND THE REAL PROPERTY.	differential equations utilizing the standard
of India	
and the same and the same of t	homogeneous, or Bernoulli cases.
Transport is an experience and the best force of	2. Student will be able to find the complete
Anni Anni Anni Anni Anni Anni Anni Anni	solution of a nonhomogeneous differential
Learning Outcomes	equation as a linear combination of the
	complementary function and a particular solution.
maginativity is successful as a second	· ·
Same, programs pairs prima	3. Student will be introduced to the complete
Professional Contract of the C	solution of a nonhomogeneous differential
to stone invensional propis of	equation with constant coefficients by the method of undetermined coefficients.
digital talence with me	
an ing the ware abstract joint and ingert us	solution of a differential equation will
asi ni silakara katishi. Ten is sha	
ed to important practical especiales	5. Student will have a working knowledge of
	basic application problems described by second
	order linear differential equations with constant
	coefficients.

DEPARTMENT OF MATHEMATICS SEMESTER-III

NAME OF THE PAPER	B.Sc (MATHEMATICS)
PAPER CODE	DSC – 1C
PAPER NAME	REAL ANALYSIS-III
Laste out	The student will:
ឯកទាំរីគ្នាលេខ អានក្រស់ គ្នានៃ ៖ និក	1. Define the real numbers, least upper bound
- Date Jases and magnined with	and the triangle inequality.
	2. Define functions between sets; equivalent
angelialing to corrections will be	sets; finite, countable and uncountable sets.
rearrifuctive intight energy who is	Recognize convergent, divergent, bounded,
	Cauchy and monotone sequences
il j. eng. penakoji modela	3. Calculate the limit superior, limit inferior, an
earning Objective	P. M. Herrier and A. A. A. Brancher and Communication of the Communicati
Nancethi nang gapa a	
Pit Santrus in resumma,	conditionally and absolutely convergent series.
The state of the s	5. Determine if subsets of a metric space are
	open, closed, connected, bounded, totally
distance conservation is printing	bounded and/or compact.
	6. Determine if a function on a metric space is
Differential and a supplying a	discontinuous, continuous, or uniformly
- 15 h	continuous.
The same and the	After the completion of the course, Students will be able to
PROGRAMMENT AND AG	
	1. Describe fundamental properties of the real
	numbers that lead to the formal development
the second second second	of real analysis.
THE REST OF STREET, IN	2. Comprehend rigorous arguments developing
	the theory underpinning real analysis.
although the same of the off of	3. Demonstrate an understanding of limits and
CARNING OUTCOMES	how they are used in sequences, series,
Star of the star o	differentiation and integration.
ON THE SECTION AND THE SERVICE	4. Construct rigorous mathematical proofs of
and the second second second second	basic results in real analysis.
Sing in the property or formally.	5. Appreciate how abstract ideas and rigorous
as PARTITIONAL REQUESTS on A	methods in mathematical analysis can be
The girefuncting political a susset Tr	
that is, if the unstable of the second	l.
to the first of a supple of the last of th	



DEPARTMENT OF MATHEMATICS SEMESTER-IV

PAPER CODE PAPER NAME	DSC-1D
A DICTAINE	Algebra
Learning Objective	 Present the relationships between abstract algebraic structures with familiar numbers systems such as the integers and real numbers. Present concepts of and the relationships between operations satisfying various properties (e.g. commutative property). Present concepts and properties of various algebraic structures. Discuss the importance of algebraic properties relative to working within various number systems. Develop the ability to form and evaluate conjectures
Learning Outcomes	After the completion of the course, Students will be able to 1. Understand the importance of algebraic properties with regard to working within various number systems. 2. Extend group structure to finite permutation groups (Cayley's Theorem). 3. Generate groups given specific conditions. 4. Investigate symmetry using group theory. 5. Understand the three major concrete models of Boolean algebra: the algebra of sets, the algebra of electrical circuits, and the algebra of logic.

DEPARTMENT OF MATHEMATICS SEMESTER-IV

SEC-III

MAN OF OTHER	· · · ·
NAME OF THE PAPER PAPER CODE	B.Sc (MATHEMATICS)
PAPER NAME	SEC – III
	Theory of Equations
Learning Objective LEARNING OUTCOMES	jewels like Fermat's theorem, Euler's theorem in the number theory
Take Go I COMES	Student uses the knowledge acquired

and the state of t

DEPARTMENT OF MATHEMATICS SEMESTER-III

SEC-I

	SEC-I
NAME OF THE PAPER	B.Sc (MATHEMATICS)
PAPER CODE	SEC-1
PAPER NAME	Theory of Equations
Learning Objective	Students learn the relation between
and the L. algebras constitution	roots and coefficients of a polynomial
he free land and the	equation, Descartes's rule of signs in
Largement of the Manney. IN P.	finding the number of positive and
The second secon	negative roots if any of a polynomial
LEARNING OUTCOMES	equation bsides some other concepts
Activities and a second of the	By using the concepts learnt the
Manufacta popular	students are expected to solve some of
Peter Supram A d C	the polynomial equations.

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DEPARTMENT OF MATHEMATICS SEMESTER-V

NAME OF THE PAPER	Paper –V B.Sc. (MATHEMATICS)
PAPER CODE	DSC – E
PAPER NAME	Linear Algebra
Learning Objective	1. Solve systems of linear equations, 2. Analyse vectors in geometrically and algebraically, 3. Recognize the concepts of the terms span, linear independence, basis, and dimension, and apply these concepts to various vector spaces and subspaces, 4. Use matrix algebra and the related matrices to linear transformations, 5. Compute and use determinants, 6. Compute and use eigenvectors and eigenvalues 7. Determine and use orthogonally, and 8 Use technological tools such as computer algebra systems or graphing calculators for visualization and calculations
ARNING OUTCOMES	algebra concepts. After the completion of the course, Students will be able to 1. Identify and construct linear transformations of a matrix. 2. Characterize linear transformations as onto, one-to-one. 3. Solve linear systems represented as linear transforms. 4. Express linear transforms in other forms, such as matrix equations, and vector equations. 5. Characterize a set of vectors and linear systems using the concept of linear independence



DEPARTMENT OF MATHEMATICS SEMESTER-V Paper –VI

PROGRAM CHATCONNES FOR ACADENOCYSAN 2020-23

NAME OF THE PAPER	B.Sc. (MATHEMATICS)
PAPER CODE TO THE STATE OF THE	DSE – 1F/C
PAPER NAME	Solid geometry
ESTROOF PRINTS IN IT SALIDS HAT HE SELECT	To get basic knowledge about Circle, Cone,
, जिल्ला समान प्रतिकृति कर्म को परावशन समान कर कि	Parabola, Hyperbola, Ellipse etc. 2. To understand
Spitzmant the artificial to the part	the concepts & advance topics related to two &
Busting self-mentals in the ethology	three dimensional geometry.
Learning Objective	3. To study the applications of conics.
and appropriate the state of th	4. To study the application of Sphere, cone and
to suffer the interpretage of the constraints	cylinder.
" THE EMPLOYER BOTH OF THE BUTCHES	5. To study how to trace the curve.
LEARNING OUTCOMES	After the completion of the course, Students will
a side of the discovered principles of any	be able to
and finding a community of the first of	1. Understand geometrical terminology for
STATE OF THE PROPERTY OF THE PARTY OF	angles, triangles, quadrilaterals and circles.
artific spars in the chart of the physician	2. Measure angles using a protractor.
Tarri, richermane, and unfaction participals	of one geometrical results to determine difficulty
A THE PROPERTY OF STREET	diffics.
alectric risk broken lecture and their	in the cognise time did notational synthicales.
g as show, when the property of affections	3. I ma the areas of thangles, quauthaterais and
Stanford of all mass for or injection the	circles and shapes based on these.
bng anadays	
dia and the second of the seco	15

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DEPARTMENT OF MATHEMATICS SEMESTER-VI

Paper -VII

NAME OF THE PAPER	B.Sc. (MATHEMATICS)
PAPER CODE	DSE VI(A)
PAPER NAME	Numerical Analysis
The Later Land	1. The course will also develop an understanding
gerbered and a rest of the second	of the elements of error analysis for numerical
	methods and certain proofs. 2. The main
Spirite and the spirite spirite and the spirite and the spirite spirite and the spirite spirite and the spirite spirit	objective of this course is to provide students
Contest Think of State of the State of the Contest	with an introduction to the field of numerical
. If the partition of the control of	analysis. 3. Derive appropriate numerical
Learning Objective	methods to solve interpolation based problems.
and one can affair of male or	4. Derive appropriate numerical methods to solve
Englished and state of the second section of	probability based problems. 5. Prove results for
White	various numerical root finding methods.
	After the completion of the course, Students will
Board of a service of the middle of \$100 m.	be able to
1.8/	1. Understand the theoretical and practical
se the base being stall a selected parallel at	aspects of the use of numerical analysis.
والمرازا المالات الممال والأراد المراعد	2. Proficient in implementing numerical methods
grown all the temperatures	for a variety of multidisciplinary applications.
residential and a sidely of the series beddet to be up to	3. Establish the limitations, advantages, and
LEARNING OUTCOMES	disadvantages of numerical analysis.
techniques in arthura list the disciplina-	4. Derive numerical methods for various
manager substantial policy of the field of feet	mathematical operations and tasks, such as
Hard the Bridge Bridge Bridge Bridge Bridge	interpolation, differentiation, integration, the
	solution of linear and nonlinear equations, and
	the solution of differential equations.
	5. Understand of common numerical analysis and
	how they are used to obtain approximate
	solutions to otherwise intractable mathematical
	problems.

DEPARTMENT OF MATHEMATICS SEMESTER-VI Paper –VIII

NAME OF THE PAPER	B.Sc. (MATHEMATICS)	
PAPER CODE	DSE-1F/B	
PAPER NAME	Vector Calculus	
Learning Objective	Concepts like gradient, divergence, curl and their physical relevance will be taught.	
LEARNING OUTCOMES	Students realize the way vector calculus is used to addresses some of the problems of physics.	

I. OF MATHEMATICS TIWRDC (M), NAGARKURNOOL 3391- PALAMURU UNIVERSITY

IQAC Co-ordinator
IQAC Co-Ordinator
TTWR Degree & PG C ollege(M)
College Code: 3391 (P.U.)
Nagarkurunool-509209 (TS)

Dr-V. D

Principal Principal TTWR Degree College (B,

Nagar Kurnool - 509 209.



TELANGANA TRIBAL WELFARE RESIDENTIAL BEGREE COLLEGE (MEN) NAGARKURNOOL

(AVELIATED TO HALLANURU UNIVERSITY, CODE: 3391)





PROGRAM OUTCOMES FOR ACADEMIC YEAR 2021-22

DEPARTMENT OF MATHEMATICS SEMESTER-I

NAME OF THE PAPER	MATHEMATICS-I
PAPER CODE	DSC - 1A
PAPER NAME	Differential & Integral Calculus
THE SECOND STREET STREET	- 1 A - 1
Property of the Control of	R contact to the
Learning Objective	The course is aimed at exposing the students to some basic notions in differential calculus
Company to the party of the state	Explain the relationship between the derivative of a function
grandigate garages with the stud	Compare and contrast the ideas of continuity and differentiability.
A PLANT OF THE PROPERTY OF STATE	2,10
Personal forces.	3) To able to calculate limits in inderminate forms by a
	4) To know the claim rule and use it to find derivatives of
Learning Outcomes	composite functions. 5) To find maxima and minima, critical
and the second of T	Political
Salamon a har contac	6) To able to evaluate integrals of rational functions by
Shipping or the market	
TENDERS - HERVETTE TO	
PRACT OF BUILDING	
	v alternatific Barrian ,
The Substitution of the St. of	Of an investment of the first

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force approximation and unit the other by a capital
order have addressed approximation or some

DEPARTMENT OF MATHEMATICS SEMESTER-II

NAME OF THE PAPER	MATHEMATICS-II
PAPER CODE	DSC-1B
PAPER NAME	Differential Equations
	1. Evaluate first order differential equations
	including separable, homogeneous, exact, and
	linear.
	2. Show existence and uniqueness of solutions.
	3. Solve second order and higher order linear
ruluted faggr	differential equations.
Learning Objective	4. Create and analyse mathematical models
	using higher order differential equations to
standados et sudalula esta grupo e a la la	column and the street and the street and the street
in the second se	oscillator and circuits. 5. Solve differential
Phillipping and the second sec	equations using variation of parameters
1995 All the second state and a second	6. Solve linear systems of ordinary differential
The state of the s	equations
here illegation and it is a proper	After the completion of the course, Students
	will be able to
Confederated in the Confederate	1. Student will be able to solve first order
of Charles and the second	differential equations utilizing the standard
the first party of the control of the	techniques for separable, exact, linear
	nomogeneous, or Bernoulli cases
	2. Student will be able to find the complete
graphes a territory action from the first tell \$100 for the	solution of a nonhomogeneous differential
arning Outcomes	equation as a linear combination of the
	complementary function and a particular
	solution.
	3. Student will be introduced to the complete
1	solution of a nonhomogeneous differential
	equation with constant coefficients by the
	method of undetermined coefficients.
w	4. Student will be able to find the complete
	solution of a differential equation with constant
1	coefficients by variation of parameters.
	5. Student will have a working knowledge of
· .	basic application problems described by second
=	order linear differential equations with constant
1	coefficients.
1.12	



DEPARTMENT OF MATHEMATICS SEMESTER-III

NAME OF THE PAPER	SEIVIESTER-III B.Sc (MATHEMATICS)
PAPER CODE	
PAPER NAME	DSC-1C
50,591	REAL ANALYSIS-III The student will:
सम्बद्धाः वर्षे वद्यात्। १३ वर्षे	
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al region of the common series	/ 1
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family of the face p	, , , , , , , , , , , , , , , , , , , ,
Synaptic - July Fillio, 5	
Learning Objective	3. Calculate the limit superior, limit inferior, and
Learning Objective	the limit of a sequence.
24 PARTITION	4. Recognize alternating, convergent,
	conditionally and absolutely convergent series.
	5. Determine if subsets of a metric space are
	open, closed, connected, bounded, totally
	bounded and/or compact.
	6. Determine if a function on a metric space is
	discontinuous, continuous, or uniformly
	continuous.
	After the completion of the course, Students
	will be able to
	1. Describe fundamental properties of the real
	numbers that lead to the formal development
	of real analysis.
	2. Comprehend rigorous arguments developing
L.	the theory underpinning real analysis.
	3. Demonstrate an understanding of limits and
	how they are used in sequences, series,
Learning Outcomes	differentiation and integration.
-	4. Construct rigorous mathematical proofs of
	basic results in real analysis.
	5. Appreciate how abstract ideas and rigorous
Region of the second	methods in mathematical analysis can be
	applied to important practical problems.
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DEPARTMENT OF MATHEMATICS

III SEC-LIM I

7 III . 2EC-1 8/11/	
NAME OF THE PAPER	B.Sc. (MATHEMATICS)
PAPER CODE	SEC – I:
PAPER NAME	Theory of Equations
Learning Objective to large land or	Students learn the relation between
	roots and coefficients of a polynomial
Tel No 1981 (e. 1.)	equation, Descartes's rule of signs in
- Control 400-1- June 1991	finding the number of positive and
Box antificulty with 1	negative roots if any of a polynomial
	equation besides some other concepts.
Learning Outcomes	By using the concepts learnt the
	students are expected to solve some of
PARTIES TO STATE OF THE STATE O	the polynomial equations.

Learning Columns

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DEPARTMENT OF MATHEMATICS SEMESTER-IV

PAPER CODE	DSC - 1D
PAPER NAME	Algebra
Learning Objective	 Present the relationships between abstract algebraic structures with familiar numbers systems such as the integers and real numbers. Present concepts of and the relationships between operations satisfying various properties (e.g. commutative property). Present concepts and properties of various algebraic structures.
Learning Outcomes	the ability to form and evaluate conjectures After the completion of the course, Students will be able to 1. Understand the importance of algebraic properties with regard to working within various number systems. 2. Extend group structure to finite permutation groups (Cayley's Theorem). 3. Generate groups given specific conditions. 4. Investigate symmetry using group theory. 5. Understand the three major concrete models of Boolean algebra: the algebra of sets, the algebra of electrical circuits, and the algebra of logic.

PROGRAM OUTCOMES FOR ACADEMIC YEAR 2021-22

DEPARTMENT OF MATHEMATICS SEMESTER-III SEC-III

NAME OF THE PAPER	B.Sc. (MATHEMATICS)
	SEC III
PAPER NAME	Number Theory
Learning Objective	Students will be exposed to some of th
Olegia Samera and Company	Jewels like Fermat's theorem. Fuler's
LEARNING OUTCOMES	theorem in the number theory.
Tritta or or and a second	

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DEPARTMENT OF MATHEMATICS SEMESTER-V

Paper -V

AME OF THE PAPER	B.Sc. (MATHEMATICS)
APER CODE	DSC – E
APER NAME	Liftedi Algebia
 an Tal Tambhara, Ny Sellan and Delight as 	1.30lve systems of infeat equations,
ed y Perushel - hillps, son 2 va ustandand	2. Allaryse vectors in geometrically and
 If the Paris is a series to a recent in the state 	algebraicany,
A parameter and a	J. Necognize the concepts of the terms
Many Destaultant of Contraction (Contraction)	span, micai macpenacioe, basis, ana
Learning Objective	dimension, and apply these concepts to
int.	various vector spaces and subspaces,
The state of the s	4. Osc matrix algebra and the related
- gar to type? Alkurate at ones bute any	matrices to linear transformations,
	5. Compute and use determinants,
The state of the s	of compace and are algeria
interested and interest antidoches.	olgon variable
powers an army of the fact of the care	//
PARCELAND SECURITY OF THE PARCEL PARC	
paymentary, representation in the artiff in the first	algebra systems or graphing calculators for visualization and calculation of linear
"Bee difference of a wear on	
THE REPORT OF COMMENTS OF THE PARTY OF THE P	After the completion of the course,
The second secon	Students will be able to
	1. Identify and construct linear
	transformations of a matrix.
	2. Characterize linear transformations as
Statistical Edition	onto, one-to-one.
	3. Solve linear systems represented as
Learning Outcomes	linear transforms.
	4. Express linear transforms in other
	forms, such as matrix equations, and
	vector equations.
	5. Characterize a set of vectors and linea
	systems using the concept of linear
	independence

PROGRAM OUTCOMES FOR ACIDING VERY 2021-22 **DEPARTMENT OF MATHEMATICS** SEMESTER-VI Paper -VI

NAME OF THE PAPER	B.Sc. (MATHEMATICS)	
PAPER CODE PAPER NAME	DSE – 1F/C	
	NUMERICAL ANALYSIS	
prie agritation of or one.	To get basic knowledge about Parabola, Hyperbola, Ellipse	etc. 2 To understand
Learning Objective	3. To study the applications of	fconice
Company of the control of the contro	cylinder.	
EARNING OUTCOMES	he able to	urve. urse, Students will
	angles, triangles, quadrilaterals 2. Measure angles using a pro-	and circles.
	angles. 4. Recognise line and retails	
- Turke in a	circles and shapes based	

DEPT. OF MATHEMATICS TTWRDC (M), NAGARKURNOU ... 3391-PALAMURU UNIVERSITY

IQAC Co-ordinator **IQAC** Co-Ordinator TTWR Degree & PG C ollege(M)
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Nagarkurunool-509209 (TS)

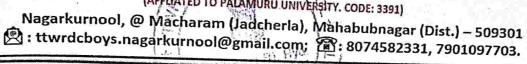
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TTWR Degree College (b. Nagar Kurnoot - 509 209



TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE (MEN) NAGARKURNOOL

(AFFLIATED TO PALAMURU UNIVERSITY. CODE: 3391)





PROGRAM OUTCOMES FOR ACADEMIC YEAR 2022-23

DEPARTMENT OF MATHEMATICS SEMESTER-I

NAME OF THE PAPER	MATHEMATICS-I	
PAPER CODE	DSC - 1A	/ tulky
PAPER NAME	Differential & Integral C	alculus
Common Particular Inc.	entropies and the	man had as in as
Learning Objective	notions in differential calcu	
Learning Outcomes	as a function and the notion the tangent line to a function. 1) Compare and contrast the differentiability. 2) To inculcate to solve algority involving the sequence roof. 3) To able to calculate limits repeated use of L' Hospital. 4) To know the claim rule as composite functions. 5) To points and inflection points the concavity of curves. 6) To able to evaluate integrations.	ne ideas of continuity and ebraic equations and inequalities t and modulus function s in indeterminate forms by a
Period Strategy of the second strategy of the	97 17 1 2 198	
and the spanning of the second	ONE CHANGE COMM. LAND	
and the second second	are Levis to Louis teams	

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DEPARTMENT OF MATHEMATICS SEMESTER-II

The state of the s

NAME OF THE PAPER	
PAPER CODE	DSC-1B
PAPER NAME	Differential Equations
_L57.	1. Evaluate first order differential equations
Mark to the	including separable, homogeneous, exact, and
	linear.
	2. Show existence and uniqueness of solutions
Established to the	3. Solve second order and higher order linear
	differential equations.
Learning Objective	4. Create and analyse mathematical models
	using higher order differential equations to
CHECK WINDS OF SEA OF SECURITY OF THE	solve application problems such as harmonic
Table 1	oscillator and circuits. 5. Solve differential
makenita to evident at and construction.	equations using variation of parameters
langs kied to eath to eath in a	6. Solve linear systems of ordinary differential
	equations
VANTOR, A REFE	After the completion of the course, Students
	will be able to
satistical and the	1. Student will be able to solve first order
the shift or known is been as	differential equations utilizing the standard
and grang apolymon part in the	techniques for separable, exact, linear,
	homogeneous, or Bernoulli cases
The second of the Belleting	2. Student will be able to find the complete
provide statistical more paga	solution of a nonhomogeneous differential
and the second section of the second section of the second	equation as a linear combination of the
earning Outcomes	complementary function and a particular
All the in any letter in particular	solution.
	3. Student will be introduced to the complete
	solution of a nonhomogeneous differential
	equation with constant coefficients by the
	method of undetermined coefficients.
The same of the	4. Student will be able to find the complete
	solution of a differential equation with constant
	coefficients by variation of parameters.
	5. Student will have a working knowledge of
	basic application problems described by second
	order linear differential equations with constant
	coefficients.
	141

DEPARTMENT OF MATHEMATICS SEMESTER-III

NAME OF THE PAPER	B.Sc. (MATHEMATICS)
PAPER CODE	DSC-1C
	REAL ANALYSIS-III
Learning Outcomes	The student will: 1. Define the real numbers, least upper bounds, and the triangle inequality. 2. Define functions between sets; equivalent sets; finite, countable and uncountable sets. Recognize convergent, divergent, bounded, Cauchy and monotone sequences. 3. Calculate the limit superior, limit inferior, and the limit of a sequence. 4. Recognize alternating, convergent, conditionally and absolutely convergent series. 5. Determine if subsets of a metric space are open, closed, connected, bounded, totally bounded and/or compact. 6. Determine if a function on a metric space is discontinuous, continuous, or uniformly continuous. After the completion of the course, Students will be able to 1. Describe fundamental properties of the real numbers that lead to the formal development of real analysis. 2. Comprehend rigorous arguments developing the theory underpinning real analysis. 3. Demonstrate an understanding of limits and how they are used in sequences, series, differentiation and integration. 4. Construct rigorous mathematical proofs of basic results in real analysis. 5. Appreciate how abstract ideas and rigorous methods in mathematical analysis can be applied to important practical problems.

DEPARTMENT OF MATHEMATICS SEMESTER-III

SEC-I

		SEC-I
NAME OF THE PAPER	TABLE 2011	B.Sc. (MATHEMATICS)
PAPER CODE		SEC – I:
PAPER NAME		Theory of Equations
Learning Objective	Isamuu o o mile.	Students learn the relation between
	at hargery in	roots and coefficients of a polynomial
		equation, Descartes's rule of signs in
25 m 15 m		finding the number of positive and
Andread Inn.	di pera con c	negative roots if any of a polynomial
EADMING OVERSON TO	Mary - Turki	equation basides same att
LEARNING OUTCOMES	radio e militar	By using the concepts learnt the
	1.30, 1, 3011	students are expected to solve some of
dnugre ismi	PARTIES AND ARCHITECTURE	the polynomial equations.

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methode maker's erablical may the see from applied to important from this mist be ma-

DEPARTMENT OF MATHEMATICS SEMESTER-IV

PURINTERNATA

APER CODE	DSC - 1D
PAPER NAME	Algebra
Learning Objective	1. Present the relationships between abstract algebraic structures with familiar numbers systems such as the integers and real numbers. 2. Present concepts of and the relationships between operations satisfying various properties (e.g. commutative property). 3. Present concepts and properties of various algebraic structures. 4. Discuss the importance of algebraic properties relative to working within various number systems. 5. Develop the ability to form and evaluate conjectures After the completion of the course, Students will be able to 1. Understand the importance of algebraic properties with regard to working within various number systems. 2. Extend group structure to finite permutation groups (Cayley's Theorem).
Learning Outcomes	3. Generate groups given specific conditions. 4. Investigate symmetry using group theory. 5. Understand the three major concrete models of Boolean algebra: the algebra of sets, the algebra of electrical circuits, and the algebra of logic.
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DEPARTMENT OF MATHEMATICS SEMESTER-III SEC-III

PROGRAM OUTCOMES FOR ACADEMIC YERR 2022-2-3

NAME OF THE PAPER	B.Sc. (MATHEMATICS)
PAPER CODE	
PAPER NAME	SEC – III
	Number Theory
Learning Objective	Students will be exposed to some of the
	jewels like Fermat's theorem, Euler's
To	theorem in the number theory.
Learning Outcomes	Student uses the knowledge acquired
	solving some divisor problems

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DEPARTMENT OF MATHEMATICS SEMESTER-V

Paper -V

rape	B.Sc. (MATHEMATICS)
NAME OF THE PAPER	
PAPER CODE	DSC – E
PAPER NAME	Linear Algebra
Learning Objective	1. Solve systems of linear equations, 2. Analyse vectors in geometrically and algebraically, 3. Recognize the concepts of the terms span, linear independence, basis, and dimension, and apply these concepts to various vector spaces and subspaces, 4. Use matrix algebra and the related matrices to linear transformations, 5. Compute and use determinants, 6. Compute and use eigenvectors and eigenvalues 7. Determine and use orthogonally, and 8.
The state of the s	Use technological tools such as computer algebra systems or graphing calculators for visualization and calculation of linear algebra concepts. After the completion of the course,
And in later of the control of the c	Students will be able to 1. Identify and construct linear transformations of a matrix.
LEARNING OUTCOMES	 Characterize linear transformations as onto, one-to-one. Solve linear systems represented as linear transforms. Express linear transforms in other forms, such as matrix equations, and vector equations.
	5. Characterize a set of vectors and linear systems using the concept of linear independence
Series	

DEPARTMENT OF MATHEMATICS SEMESTER-VI Paper –VI

NAME OF THE PAPER	B.Sc. (MATHEMATICS)	
PAPER CODE	DSE - 1F/C	
PAPER NAME	NUMERICAL ANALYSIS	
The state of the state of the Fig.	To get basic knowledge about Circle, Cone,	
	Parabola, Hyperbola, Ellipse etc. 2. To understand	1
The state of the s	the concepts & advance topics related to two &	1
ton exam another per	three dimensional geometry.	L
Learning Objective		
Leminards paul domain	4. To study the application of Sphere, cone and	
harara pili ling	I CVIIIUCI.	
LEADING OF THE STATE OF THE STA	(5. TO STUDY NOW TO TRACE THE CHIVE	
LEARNING OUTCOMES	Aller the completion of the course. Students will	
4	be able to	
Story are portered	1. Understand geometrical terminology for	
The grand for the last of the first of the	angles, triangles, quadrilaterals and circles.	
and the first particular to the	2. Weasure angles using a protractor.	
the second second	3. Use geometrical results to determine unknown	
140	angles.	
es dae intr	4. Recognise line and rotational symmetries.	
9.0 4 84	5. Find the areas of triangles, quadrilaterals and	
	circles and shapes based on these.	

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DEPT. OF MATHEMATICS

TTWRDC (M), NAGARKURNIGHT

3391-PALAMURU UNIVERSIT

Dr.11-1

IQAC Co-ordinator

TQAC Co-Ordinator
TTWR Degree & PG C ollege(M)
College Code: 3391 (P.U.)
Entrupool-509209 (**)

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AND THE PARK

Principal Degree College (B) Nagar Kumool 509 209 (B) NAGARKURA

TELANGANA TRIBAL WELFARE, RESIDENTIAL DEGREE COLLEGE (MEN) NAGARKURNOOL

(AFFLIA TO PALANURU UNIVERSITY CODE: 3391)





PROGRAM OUTCOMES FOR ACADEMIC YEAR 2023-24

DEPARTMENT OF MATHEMATICS SEMESTER-I

NAME OF THE PAPER	MATHEMATICS-I
PAPER CODE	DSC-1A
PAPER NAME	Differential & Integral Calculus
FAILKING	POTENTIAL SALLACTORY
and the second s	la de la companya de
grant of the state of the second	The course is aimed at exposing the students to some basic
Learning Objective	use tial colouille
	Explain the relationship between the slope of as a function and the notion of the derivative as the slope of
	to a function at a politic
	a) Compare and contrast the ideas of continuity and
- Aller and Miles	1 2004 C 404 PART 20
	differentiability. 2) To inculcate to solve algebraic equations and inequalities
Language day of the	the contience roof and modulus fulletion.
and the state of the state of	3) To able to calculate limits in indeterminate forms by a
	to due of L' Hospital rule.
	at a state of a rule and use it to find derivatives of
Learning Outcomes	composite functions. 5) To find maxima and minima, critical
Learning Comments of the Comme	points and inflection points of functions and to determine
	points and inflection points of remaining
representation of the second	the concavity of curves. 6) To able to evaluate integrals of rational functions by
William of Manager	6) To able to evaluate integruis of the
	partial fractions.
afelgram) um sil irkerin e Igijejan filo caranerus "	Santagina and Pa
Political Parameters of His	t in the second
H. P. M. Newson of A.	provided as

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DEPARTMENT OF MATHEMATICS

	SEMESTER-II MATHEMATICS-II
1 11 11 11 11 11 11 11 11 11 11 11 11 1	DSC – 1B
PAPER CODE	1 TE of one
PAPER NAME	4. Furly sta first order differential equations
	including separable, homogeneous, exact, an
	linear.
Allega American Control	2. Show existence and uniqueness of solutions
	3. Solve second order and higher order linear
meler	differential equations.
	differential equations. 4. Create and analyse mathematical models
earning Objective	using higher order differential equations to
	using higher order differential equations of
artical makes on the space was the	solve application problems such as harmonic
	oscillator and circuits. 5. Solve differential
godu naj - 36 a steveres -	equations using variation of parameters
to region with the street man and an	
200	equations
24 5 1 2 E E E	After the completion of the course, Students
250 Block - S.M. S. Brewson - Land	will be able to
All matrix as a management of a	2.00440.10
g J F , Chambins are	differential equations delized
	/ ********** / / / /
	Homogeneous, of Bernoulli cases.
per i i i i i i i i i i i i i i i i i i i	Z. Stadent VIII. 20 days
and the second of	Solution of a normal magazine as an er an ar
arning Outcomes	complementary function and a particular solution.
	3. Student will be introduced to the complete
	solution of a nonhomogeneous differential
	equation with constant coefficients by the
	method of undetermined coefficients.
	4. Student will be able to find the complete
	solution of a differential equation with constant
	coefficients by variation of parameters.
	5. Student will have a working knowledge of
	basic application problems described by second
	order linear differential equations with constant
	coefficients.
	1

DEPARTMENT OF MATHEMATICS

B.Sc. (MATHEMATICS) DSC – 1C REAL ANALYSIS-III The student will: 1. Define the real numbers, least upper bounds, and the triangle inequality. 2. Define functions between sets; equivalent sets; finite, countable and uncountable sets. Recognize convergent, divergent, bounded, Cauchy and monotone sequences. 3. Calculate the limit superior, limit inferior, and the limit of a sequence. 4. Recognize alternating, convergent, conditionally and absolutely convergent series.
REAL ANALYSIS-III The student will: 1. Define the real numbers, least upper bounds, and the triangle inequality. 2. Define functions between sets; equivalent sets; finite, countable and uncountable sets. Recognize convergent, divergent, bounded, Cauchy and monotone sequences. 3. Calculate the limit superior, limit inferior, and the limit of a sequence. 4. Recognize alternating, convergent.
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3. Calculate the limit superior, limit inferior, and the limit of a sequence.4. Recognize alternating, convergent.
4. Recognize alternating, convergent.
4. Recognize alternating, convergent.
conditionally and absolutely
conditionally alla absolutely convergent carioc
5. Determine if subsets of a metric space are
open, closed, connected, bounded, totally
bounded and/or compact.
6. Determine if a function on a metric space is
discontinuous, continuous, or uniformly
continuous.
After the completion of the course, Students
will be able to
1. Describe fundamental properties of the real
numbers that lead to the formal development
of real analysis.
2. Comprehend rigorous arguments developing
the theory underpinning real analysis.
3. Demonstrate an understanding of limits and
how they are used in sequences, series,
differentiation and integration.
4. Construct rigorous mathematical proofs of
basic results in real analysis.
5. Appreciate how abstract ideas and rigorou
methods in mathematical analysis can be
applied to important practical problems.

DEPARTMENT OF MATHEMATICS SEMESTER-III

SEC-I

E SEC	B.Sc. (MATHEMATICS)
NAME OF THE PAPER	B.Sc. (INPATTIESVETTE)
PAPER CODE	SEC - I:
PAPER NAME	Theory of Equations
Learning Objective	Students learn the relation between roots and coefficients of a polynomial equation, Descartes's rule of signs in finding the number of positive and negative roots if any of a polynomial equation besides some other concepts.
Learning Outcomes	By using the concepts learnt the students are expected to solve some of the polynomial equations.

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DEPARTMENT OF MATHEMATICS SEMESTER-IV

PAPER CODE	DSC - 1D	
PAPER NAME	Algebra	
Learning Objective	1. Present the relationships between abstract algebraic structures with familiar numbers systems such as the integers and real numbers. 2. Present concepts of and the relationships between operations satisfying various properties (e.g. commutative property). 3. Present concepts and properties of various algebraic structures. 4. Discuss the importance of algebraic properties relative to working within various number systems. 5. Develop the ability to form and evaluate conjectures After the completion of the course, Students will be able to 1. Understand the importance of algebraic properties with regard to working within various number systems. 2. Extend group structure to finite permutation groups (Cayley's Theorem). 3. Generate groups given specific conditions. 4. Investigate symmetry using group theory. 5. Understand the three major concrete models of Boolean algebra: the algebra of sets, the algebra of electrical circuits, and the algebra of logic.	

DEPARTMENT OF MATHEMATICS SEMESTER-III SEC-III

NAME OF THE PAPER	- If % - 1
PAPER CODE	B.Sc. (MATHEMATICS)
PAPER NAME	SEC – III
Learning Objective	Number Theory
Learning Outcomes	Students will be exposed to some of the jewels like Fermat's theorem, Euler's theorem in the number theory. Student uses the knowledge acquired solving some districts.
	solving some divisor problems

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DEPARTMENT OF MATHEMATICS SEMESTER-V

Paper -V

	er –V
NAME OF THE PAPER	B.Sc. (MATHEMATICS)
PAPER CODE	DSC – E
PAPER NAME	Linear Algebra
Learning Objective Learning Outcomes	1. Solve systems of linear equations, 2. Analyse vectors in geometrically and algebraically, 3. Recognize the concepts of the terms span, linear independence, basis, and dimension, and apply these concepts to various vector spaces and subspaces, 4. Use matrix algebra and the related matrices to linear transformations, 5. Compute and use determinants, 6. Compute and use eigenvectors and eigenvalues 7. Determine and use orthogonally, and 8. Use technological tools such as computer algebra systems or graphing calculators for visualization and calculation of linear algebra concepts. After the completion of the course, Students will be able to 1. Identify and construct linear transformations of a matrix. 2. Characterize linear transformations as onto, one-to-one. 3. Solve linear systems represented as linear transforms. 4. Express linear transforms in other forms, such as matrix equations, and vector equations. 5. Characterize a set of vectors and linear systems using the concept of linear independence

DEPARTMENT OF MATHEMATICS SEMESTER-VI Paper –VI

NAME OF THE PAPER	B.Sc. (MATHEMATICS)
PAPER CODE	DSE - 1F/C
PAPER NAME FACILITY OF TESTINETO TRANSPORTED SAVE	NUMERICAL ANALYSIS
the contact of the co	To get basic knowledge about Circle, Cone, Parabola, Hyperbola, Ellipse etc. 2. To understand the concepts & advance topics related to two & three dimensional geometry. 3. To study the applications of conics. 4. To study the application of Sphere, cone and cylinder.
earning Outcomes of the solution and the	5. To study how to trace the curve. After the completion of the course, Students will be able to
The principal septiment of the second school reasonable with the second sc	 Understand geometrical terminology for angles, triangles, quadrilaterals and circles. Measure angles using a protractor. Use geometrical results to determine unknown angles.
promotes and its recomply missing and	 Recognise line and rotational symmetries. Find the areas of triangles, quadrilaterals and circles and shapes based on these.

HOD

IQAC Co-ordinator

DEPT. OF MATHEMATICS IQAC Co-Ordinator
TTWRDC (M), NAGARKURNGO TWR Degree & PG C ollege(M)
College Code: 3391 (P.U.)

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Principal

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