(Affiliated to Andhra University) An Institution of Priyadarshini Educational Academy) NAAC ACCREDITED COLLEGE

Dr.V.Rama Rao, M.A., Ph.D., Secretary & Correspondent

Dr.A.Balakrishna, M.Sc., Ph.D., Principal

DEPARTMENT OF MATHEMATICS

Program Specific Outcomes

Revised CBCS

W.E.F 2020-2021

- PSO1: Be able to apply theoretical / analytical / statistical knowledge gained in various courses of B.Sc to solve numerical problems based on real life situations during practical and draw meaningful solutions to day to day problems like traffic management.
- **PSO2:** Be able to apply theoretical / analytical / statistical knowledge gained in various courses of B.Sc to solve numerical problems based on real life situations during practical and draw meaningful Solutions to day to day problems like traffic management.
- **PSO3:** Be able to access, explore an area to obtain information and use the literature in Mathematics and also able to work as a member of a team.
- **PSO4:** Be able to integrate knowledge gained in Mathematics to General education courses like Analytical Skills.
- **PSO5:** Enabling students to develop a positive attitude towards Mathematics as an Interesting and valuable subject of study.



PRINCIPAL M.V.R. DEGREE COLLEG Shramika Nagar, Gajuwaka, VISAKHAPATNAM - 530 026

(Affiliated to Andhra University) An Institution of Priyadarshini Educational Academy) NAAC ACCREDITED COLLEGE

Dr.V.Rama Rao, M.A., Ph.D., Secretary & Correspondent Dr.A.Balakrishna, M.Sc., Ph.D., Principal

Department Of Mathematics

Bachelor Of Science

REVISED CBCS

W.E.F 2020-2021

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| Code | Title of the paper | Course Out Comes |
|--|--|--|
| COURSE –I | Differential equations and differential equations problem solving sessions | CO 1: To find the linear differential equations. CO 2:To find the solutions of differential equations by using exact differential equations CO 3:Using orthogonal trajectories in |
| poirt, Taneat; pian, Pole of a vedex; gridu of semi-retticul his Equation to regression to regression to | (Coll) its tind Power of a place; Plane; Plane of contacts Point Power of a Plane; Plane of contacts Power of a Coll Definitions of the nel sink a given vertex, axis angle; (C) Potentical of the nel angle; Plane context of a coll production of a coll plane. | Cartesian form and polar form of family curves. CO4:To solve homogenous differential equations using somerules CO5:Compute all the solutions of second and higher order linear differential equations with constant coefficients, linear equations with variable coefficients. CO6:To find complementary and particular functions using some methods i.e trigonometry ,polynomial, exponential functions CO7:To find complementary and particular functions CO7:To find complementary and particular functions CO7:To find complementary and particular functions CO7:To find complementary and particular functions CO7:To find complementary and particular functions using some methods i.e trigonometry ,polynomial, exponential with trigonometry functions CO8:Variation of parameters CO9:Compute all the solutions of Higher Order Linear Differential Equations with |
| | | Constant Coefficients and non Constant Coefficients |



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| Dr.V.Rama Rao, M.A., Ph.D., | Dr.A.Balakrishna, M.Sc., Ph.D., |
|---|---|
| Secretary & Correspondent | Principal |
| COURSE-II Three diamensional solid geometry and three | CO1:To find equation of plane in terms of its intercepts on the axis. |
| diamensional solid geometry | CO2:To find combined equation of two |
| problem solving session | planes, Orthogonal projection on a plane |
| 1 0 | CO3:Find the angle between planes, Bisector |
| ED CBCS | planes, Perpendicular distance from a point to |
| 2020-2021 | a plane, Image of a line on a plane, Intersection of two lines |
| | CO4: The condition that a given line may lie in |
| | a given plane |
| Course 1101 C 88/06 | CO5:Sets of conditions which determine a line |
| | CO6: The shortest distance between two lines |
| REPORT AN ADDRESS OF CHILDREN AND A | CO7:Angle between a line and a plane |
| CONTRACTOR OF A CONTRACT OF A | CO8:Definition and equation of the sphere; |
| down to see the last has a set an and | CO9:Equation of a circle |
| 25/79/2 | CO10:To find Power of a point; Tangent |
| CO-To solve homogenon differentiation | plane; Plane of contact; Polarplane; Pole of a |
| courtons since anactules | Plane; Conjugate points; Conjugate planes. |
| COSt outputs all the solution of cost | corrections of a cone, vertex, guiding |
| faint higher order traes officiality | CO12: Equation of the right circular cone |
| equations, with container coefficients. | with a given vertex: axis and semi-vertical |
| listent equations with variable | angle |
| | CO13:Definition of a cylinder; Equation to |
| | the cylinder whose generators intersect a |
| | given conic and are parallel to a given line |
| tolutore (v.) - PRIMATIONER - Antistorio - in | |
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M.V.R. DEGREE COLLEGE (UG And PG Courses) (Affiliated to Andhra University) An Institution of Priyadarshini Educational Academy)

NAAC ACCREDITED COLLEGE

| Dr.V.Rama I | Rao, M.A., Ph.D., | Dr.A.Balakrishna, M.Sc., Ph.D., |
|----------------------------|--|--|
| Secretary & Co | orrespondent | Principal |
| COURSE-III | Abstract Algebra and | CO1:To find set is a group or not with some |
| | Abstract Algebra Problem | conditions |
| latozeta ni zasehit | Solving Sessions | CO2:Binary Operation - Algebraic structure - |
| | value, real line | semi group-monoid |
| nite of entry | CO3 10 know about | CO3:Write the definitions of Complex, |
| рону | eonvergence, inclus addooth | subgroup and coset |
| 200000000000000 | COLDefinition and Phooton | CO4:Prove some theorems Index of a |
| Herris ()P-tes(2.) | CO5 To principa the left pro- | subgroups of a finite groups-Lagrange's |
| 001 Test (1) 17 | Canciley's in tool tost of R | Theorem. |
| studies (1.4. alternative) | Alemberts Test of Ratio Te | CO5:Examples of Subgroups, cosets and |
| 0.111.22.11 | Sarks - Estimate Tort | union and intersection of Subgroups |
| is Carrollovits | CO64Cook scale theorem | CO5: criterion for a subgroup to be a |
| suited A some | general municiple of converg | normal subgroup - intersection of two normal |
| Constitution (| couvergence and conditional | subgroups |
| | somi convergionia | CO6:criteria for the existence of a quotient |
| contrantly | to contracting the definition of | group |
| haddao', jo sod | COS/To know the otherent of | CO7:Definition of homomorphism |
| 2016003F1 6PA 3 | CO I o tean some example | ,Isomorphism, aultomorphism , kernel of |
| nodesimilation to | COTO to learn defination o | a homomorphism |
| | i fev using contrautor detination | CO8:Fundamental theorem on Homomorphism |
| ean to surviv | out sense ob of L(O) | and applications |
| | demonstration and the cool | CO9:Theorems of permutation |
| 2010-0501-050 | COLL Laknow the Mean va | multiplication – Inverse of a |
| pareau 10 s | modate work electron | permutation – cyclic permutationsand |
| | fancoons | Cayley's theorem. |
| 19912 201 10 11 | STORE STREAM TAILS | CO10:Definition Ring and their properties |
| 18102-6-20 | REFERENCE OF STREET STREET | CO11:Definitions of Integral Domains, Fields |
| | | CO12: Ineorems on Integral Domains and |
| | | CO12 De Ceitien COL |
| | and the second | CO13:Definition of Characteristic of a Ring |
| | | CO14: Theorems on Characteristic of a Ring |



(Affiliated to Andhra University) An Institution of Priyadarshini Educational Academy) NAAC ACCREDITED COLLEGE

| Dr.V.Rama I Secretary & Co | Rao, M.A.,Ph.D., orrespondent | Dr.A.Balakrishna,M.Sc.,Ph.D., Principal |
|-------------------------------|--|---|
| COURSE IV | Real Analysis & Real | CO1:To understand about all numbers |
| | Analysis Problem Solving | definitions. |
| anismis class | Sessions | CO2:To learn about real numbers in absolute |
| | seni group-monord | value, real line |
| - of - Complete | CONWRITE We definition | CO3:To know about theorems of |
| | subgroup and coset | convergence, limits and continuity |
| and to zebat | CO-Dimove some theorems | CO4:Definition and Theorems on sequences |
| Six operation - + | subgroups of a finite group | CO5:To practice the test problems 1)P-test 2.) |
| | Theorem | Cauchey's n th root test or Root Test. 3.) D'- |
| - Line Jones - | CONFREMIPLES of Subgrident | Alemberts' Test or Ratio Test.4.) Alternating |
| a for the second | puton and intersection of Step | Series – Leibnitz Test |
| a of of quot | FCO3: Jongton for a sub- | CO6:Know some theorems Cauchey's |
| Isonos on loa | i ortsidenboratio - mersecto | general principle of convergence, Absolute |
| | substatus | convergence and conditional convergence, |
| astorb a to as | CO5 collectar for the existent | semi convergence |
| Constant of the | daore | CO7:To use the definition of continuity |
| The management | of to nonminiper (0.) | CO8: To know the different types of Continuity |
| in letters, in | adquotation analonomation | CO9:To learn some examples and theorems |
| Print Street | marginerionen e | CO10: To learn definition of differentiation |
| a Honomono Hono | CONTRACTOR NECTOR | by using continuity definition |
| | successfore pure | COII: To do some problems by using |
| ALLE METT | 10 SUGIO型(1)-475 | differentiation function |
| 0 10 | анарисацов – подсадова | CO12: To know the Mean value Theorems |
| AUS2002E1 | ревниятор – суста ратала | CO13:10 know Properties of integrable |
| | madoan 2 (a) (c.) | functions |
| sat record na | at our dury unifituation (1173) | CO14: Fundamental theorem of integral |
| Digital annual | CONTRACTOR OF MILENERS | calculus, integral astne limit of a sum |
| an sugard | COLL INCOLERNS OF MICH | |
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| Server Contraction | and strated to deduct the top of | |

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| Dr.V.Rama | Rao, M.A., Ph.D., | | Dr.A.Balakrishna, M.Sc., Ph.D., |
|----------------|---|--------------------|--|
| Secretary & Co | orrespondent | | Principal |
| COURSE V | Linear Algebra Algebra Problem sessions | &Linear solving | CO1:I t is easily to highlight the need for linear algebra for physicists- quantum mechanics is entirely based on it CO2:To learn properties of vector spaces CO3:To write the properties of vector spaces CO4:To do some theorems and problems in Dimension of a Vector space, Dimension of a subspace, Quotient space and Dimension of Quotient space. CO5:To find rank and nullity in the matrix CO6:Using some properties in the linear transformations CO7: Give some examples in the linear transformations CO 8: It used operations in rows and columns in various methods. CO 9: It is used structural reasoning with entries of the matrix and orientation of the shape CO 10: To do some theorems are Bessel's inequality and Parseval's Identity |



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PR L M.V.R. DEGKET COLLEGE Swamika Naster, Gujuwaka, VISAKHAPA (1994) - 530 026

(Affiliated to Andhra University) An Institution of Priyadarshini Educational Academy) NAAC ACCREDITED COLLEGE

Dr.V.Rama Rao, M.A., Ph.D., Secretary & Correspondent Dr.A.Balakrishna, M.Sc., Ph.D., Principal

DEPARTMENT OF MATHEMATICS

Program Specific Outcomes (2015-16)

PSO1: Be able to apply theoretical / analytical / statistical knowledge gained in various courses of B.Sc to solve numerical problems based on real life situations during practical and draw meaningful solutions to day to day problems like traffic management.

- **PSO2:** Be able to apply theoretical / analytical / statistical knowledge gained in various courses of B.Sc to solve numerical problems based on real life situations during practical and draw meaningful Solutions to day to day problems like traffic management.
- **PSO3:** Be able to access, explore an area to obtain information and use the literature in Mathematics and also able to work as a member of a team.
- **PSO4:** Be able to integrate knowledge gained in Mathematics to General education courses like Analytical Skills.
- PSO5: Enabling students to develop a positive attitude towards Mathematics as an

Interesting and valuable subject of study.



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PRINCIPAL M.V.R. DEGREE COLLEGE Siwamika Nagar, Gajuwaka, VISAKHAPATNAM - 530 026

(Affiliated to Andhra University) An Institution of Priyadarshini Educational Academy) NAAC ACCREDITED COLLEGE

Dr.V.Rama Rao, M.A., Ph.D., Secretary & Correspondent Dr.A.Balakrishna, M.Sc., Ph.D., Principal

Department Of Mathematics

Bachelor of Science

Course Outcomes of Mathematics:

| Code | Title of the paper | Course Out Comes |
|-----------|--|--|
| COURSE –I | Differential equations and differential equations problem solving sessions | CO 1: To find the linear differential equations. CO2 :To find the solutions of differential equations by using exact differential equations CO3 :Using orthogonal trajectories in Cartesian form and polar form of family curves. CO4:To solve homogenous differential equations using somerules |
| | | CO5:Compute all the solutions of second and higher order linear differential equations with constant coefficients, linear equations with variable coefficients. CO6:To find complementary and particular functions using some methods i.e trigonometry ,polynomial, exponential functions CO7:To find complementary and particular functions CO7:To find complementary and particular functions using some methods i.e trigonometry ,polynomial, exponential with trigonometry functions CO8:Variation of parameters CO9:Compute all the solutions of Higher Order Linear Differential Equations with Constant Coefficients and non Constant Coefficients |

| Dr.V.Rama I Secretary & Co | Rao, M.A.,Ph.D., orrespondent | Dr.A.Balakrishna, M.Sc., Ph.D., Principal |
|--|---|---|
| COURSE-II | Three diamensional solid | CO1:To find equation of plane in terms of its |
| | geometry and three | intercepts on the axis. |
| aic structure - | diamensional solid geometry | CO2:To find combined equation of two |
| | problem solving session | planes, Orthogonal projectionon a plane |
| of Complex. | CO3/Write the definitions | CO3:Find the angle between planes, Bisector |
| | subgroup and coset | planes, Perpendicular distance from a point to |
| idex of a | COA Prove some incorems 1 | a plane, Image of a line on a plane, |
| Logrange's | suplations of a finite from | Intersection of two lines |
| | Theorem. | CO4: The condition that a given line may lie in |
| bus sizes; | CO5 fixamples of subgroups. | a given plane |
| 200 | outen pur intersection of Subfite | CO5:Sets of conditions which determine a line |
| up to be all | COSH creenon for a subgra | CO6: The shortest distance between two lines |
| isurna owi ji | normal subgroup - unarsection. | CO7: Angle between a line and a plane |
| | aubrequips | CO8:Definition and equation of the sphere; |
| area quadrat | CObjanteria for file existence | CO9:Equation of a circle |
| | an an | CO10:To find Power of a point; Tangent |
| and the second s | CO7 Demnion & homo | plane; Plane of contact; Polarplane; Pole of a |
| 19103 | anang among mentalogian. | Plane; Conjugate points; Conjugate planes. |
| | a horizontica and a second control of the | COII:Definitions of a cone; vertex; guiding |
| (mand rough of our of | | curve; generators |
| | su on tronging par | CO12:Equation of the right circular cone |
| a ann an | Hog to 2000/P1 (CD) | with a given vertex; axis and semi-vertical |
| 8 10 5 | Derever Densauth fund | angle CO12 Definition of a collindom Exaction to |
| CAG 2010 | nminund analo - nonminurad | the relinder where expender; Equation to |
| | Cattey's meorem. | the cylinder whose generators intersect a |
| | | given conic and are parallel to a given line |
| | | |

| Dr.V.Rama F Secretary & Co | Rao, M.A.,Ph.D., prrespondent | Dr.A.Balakrishna,M.Sc.,Ph.D., Principal |
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| COURSE-III | Abstract Algebra and | CO1:To find set is a group or not with some |
| | Abstract Algebra Problem | conditions have a to story of |
| Louis to mail | Solving Sessions | CO2:Binary Operation - Algebraic structure - |
| La plane | | semi group-monoid |
| anes. Bisector | | CO3:Write the definitions of Complex, |
| or point to | | subgroup and coset |
| 0.00 | | CO4:Prove some theorems Index of a |
| | laterspecton of two laters | subgroups of a finite groups-Lagrange's |
| ine may be ma | CO4 The condition that a piven | Theorem. |
| | a given plane | CO5:Examples of Subgroups, cosets and |
| sterning a line s | error sets of conditions which d | union and intersection of Subgroups |
| 200 1510 (1965 | CO6:The shortest distance being | CO5: criterion for a subgroup to be a |
| plane | COT Angle between a line and a | normal subgroup – intersection of two normal |
| the sphere; | CO8 Definition and equation of | subgroups |
| | CO9:Equation of a circle | CO6:criteria for the existence of a quotient |
| - 17 191341 9 - 1100 | COM To find Power of PLOC | group |
| Lette state and | and the state of the state of the | CO7:Definition of homomorphism |
| are planes. | nuos santais permis (soano | , lsomorphism, automorphism, kernel of |
| and a straight and a | COLLOCIUMOUS OF S CONC. | a homomorphism |
| | 21016:2015) 27 m 3 | CO8:Fundamental theorem on Homomorphism |
| arcular coup | FILL WE REPORTED TO THE | and applications |
| sead-vertical | DUB SIZE SOLDA DEVIS E UNA | UU9: Theorems of permutation |
| | ordina | multiplication – inverse of a |
| op notical of | HODMAN & TO HOURING (1973) | Contantiation – cyclic permutations and |
| 1010526010 | 105 CYBGORT WRESS 2010 | Cayley suborem. |
| A CONTRACT OF THE SECOND | REACH PRIMARING CONTRACTOR AND A CONTRACT AND A CONTRAC | |

| Dr.V.Rama I | Rao, M.A., Ph.D., | Dr.A.Balakrishna, M.Sc., Ph.D., |
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| Secretary & Co | orrespondent | Principal |
| COURSE IV | Real Analysis & Real | CO1:To understand about all numbers |
| theorems | Analysis Problem Solving | defintions. |
| Sille | Sessions | CO2:To learn about real numbers in absolute |
| | Image, Elementary Proventes of | value, real line |
| | Homomorphysm | CO3:To know about theorems of |
| bris ata | Define Rendel of a Homomorph | convergence, limits and continuity |
| | explain Pundamentaliheorem of | CO4:Definition and Theorems on sequences |
| Rings | Homomorphism on Groups and | CO5:To practice the test problems 1)P-test 2.) |
| in share | CO2: To learn new concepts till | Cauchey's n th root test or Root Test. 3.) D'- |
| | divergence and cont | Alemberts' Test or Ratio Test.4.) Alternating |
| | CO > Here using partial | Series – Leibnitz Test |
| .hi | differentiation to find gracient, of | CO6:Know some theorems Cauchey's |
| and the second | divergence | general principle of convergence, Absolute |
| HOW THE | CO 1: Here using vector and set | convergence and conditional convergence, |
| and volume al | CO 22 Effect to define line, surface | semi convergence |
| | elsen official | CO7: To use the definition of continuity |
| | 1 dinaupari nunao ilada (0.3 | CO8: To know the different types of Continuity |
| | - has he to all all a collocation | CO9: To learn some examples and theorems |
| Land Marshell | surgine indiana | CO10: To learn definition of differentiation |
| Sitte | COPT Vester function reduces of | by using continuity definition |
| 10.0510 | evaluation of three whitany topic | COII:10 do some problems by using |
| ofit ge | CO * Readers are advised to eit | differentiation function |
| | Signet cince in each | CO12: To know the Mean value Theorems |
| istos, tector | CO.9. We discuss lifee impartab | CU15:10 Know Properties of Integration |
| | nuegeal memerus | CO14:Eundomental theorem of integral |
| | | coloulus integral asthe limit of a sum |
| | | calculus, integral astic mint of a sum |
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| Dr.V.Rama Rao, M.A., Ph.D., | | Dr.A.Balakrishna, M.Sc., Ph.D., |
|---|-----------|---|
| Secretary & Correspondent | | Principal |
| Course V Ring Theory and V | Vector | CO1: Define rings, zero divisors of a ring, |
| Calculus & Ring T | heory | integral domain, field andprove theorems |
| and Vector Ca | lculus | Define Homomorphism, Homorphic |
| Problem Solving Sessio | ons | Image, ElementaryProperties of |
| o know about looren's of | T POOL | Homomorphism |
| gando, Runits and contain in | 127502 | Define Kernel of a Homomorphism and |
| efficition and Trequency on sequences | 6400 | explain Fundamentaltheorem of |
| n prantee the rest problems ()P-(est 2) | 003:3 | Homomorhphism on Groups and Rings |
| solves and the set of the set of the set of the | Chuche | CO2: To learn new concepts like gradient, |
| ensi Test or Retto Test of Alternation | Alemb | divergence and curl |
| teat shadis i | Salies | CO 3: Here using partial |
| now some flatteness (another s | 1:000 k | differentiation to find gradient, curl, |
| Epiticipie of convertience, Aprobatic | genera | divergence |
| gauge and conditional sparse genee. | conver | CO 4: Here using vector and scalar point |
| ouvergenere | setni or | CO 5: Here to define line ,surface and volume |
| e uso the definition of ac munty | 1007 T | integrals |
| o light the durant part of Containing | 1000 | CO 6: Which occur frequently in |
| an mage presentiness since many o | with and | connection with physical and |
| To loan dollation of "literomaneo | 0100 | engineering problems |
| ng contrantive contraction | nac yd (| CO 7: Vector function reduces to the |
| For some problems by define | 1100 0 | evaluation of three ordinary realintegrals |
| nonowy admini- | aplin (| CO 8: Readers are advised to grasp the |
| eros rose i pairo usate ou voirt o r- | 2 COD | significance in each |
| To datory Frondition of historials | 0013 | CO 9: We discuss three important vector |
| 6115 | i functio | integral theorems |
| induced a morene market | PI00 | |
| and a property as the property of the states of the | (Chich) | |
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| Dr.V.Rama | Rao, M.A., Ph.D., | Dr.A.Balakrishna, M.Sc., Ph.D., |
|------------------|---|--|
| Secretary & Co | orrespondent | Principal |
| COURSE VI | Linear Algebra &Linear Algebra Problem solving sessions | CO1:I t is easily to highlight the need for linear algebra for physicists- quantum mechanics is entirely based on it CO2:To learn properties of vector spaces CO3:To write the properties of vector spaces CO4:To do some theorems and problems in Dimension of a Vector space, Dimension of a subspace, Quotient space and Dimension of Quotient space. CO5:To find rank and nullity in the matrix CO6:Using some properties in the linear transformations CO7: Give some examples in the linear transformations CO 8: It used operations in rows and columns in various methods. CO 9: It is used structural reasoning with entries of the matrix and orientation of the shape CO 10: To do some theorems are Bessel's inequality and Parseval's Identity |
| Course VII(B) | Numerical Analysis & Problem Solving Sessions | CO1: Define Basic concepts of operators Δ , E, ∇ Define The Calculus Of Finite Differences Find the difference of polynomial and define Interpolation with Equal Intervals CO2 : Here learn some method solving equations CO3: Here to find accurate value by using successive values CO4: we wish to find some approximate value of the root which satisfies our need without much change in its basic characters CO5: Symbolic relations, Detection of errors by use of CO6: To enjoy the class and to learn easily CO7: To do problems fastly CO8: Stirling's formula decrease much more rapidly than other difference |

| Dr.V.Rama R Secretary & Co | 2a0, M.A.,Ph.D., rrespondent | Dr.A.Balakrishna,M.Sc.,Ph.D., Principal |
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| the need of its qualitude it spaces ector spaces motions in theresion of the maters in the linear is and columns of sources | COTTTT's easily to highlight mean algebra. for nhy and acchance is endedy haved on a COCTO with data properties of yeet COCTO with data properties of yeet COCTO with data properties of Dimension of a Vector space, if Dimension of a Vector space, if Content space. Content space and COCTO sing some properties manifestions. COTTO sing some properties content space. COTTO sing some properties manifestions. COTTO share some cyamples manifestions. COTTO sing some cyamples. COTTO share methods. COTTO sing methods. | formulae hence considering first few number of termsitself will give better accuracy. CO 9: Forward or backward difference formulae use the onside information of the function where as Stirling's formula uses the function values on both sides of f(x). CO 10: The insertion of something of a different nature into somethingelse CO 11: A remark interjected in a conversation. |
| Course VIII A-1 | Integral Transforms & Problem Solving Session | CO 1: We have applied laplace transformation in linear ode withconstant coefficient. CO2: It makes easier to solve the problems. CO 3: It makes differential equations simple solve. |
| ifferences it and otvine is by name obvine is by name other other other of come come come come come come come come | V Define the calculus Of Frans I Find the difference of pelvnomi define interpolation with Equal (CC). Here to find accurate val- equations. CO I have to find accurate val- successive values. CO I have values. CO I have values. CO S Symbolic relations. Dete enters by use of coo To equip the class and to coo S Strikeg's formula decree. | CO 4: It is applied to one of the variables and the resulting differential equation in the second variable is then solved by theusual method of ODE . CO 5: to find the shape of a frictionless wire lying in a vertical plane such that a bead placed on the wire slides to the lowest point in the same time regardless of where the beadis placed initially CO 6: To efficient numerical method for the treatment of singular integral equations of the first and second kind CO 7: The Fourier transform (FT) decomposes a function into its constituent frequencies. A special case is the expression of amusical chord in terms of the volumes and frequencies of its constituent |

| Dr.V.Rama Rao, M.A., Ph.D., | Dr.A.Balakrishna, M.Sc., Ph.D., |
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| Secretary & Correspondent | Principal |
| Offmus van Julius and M. 2010 Market O 10. (o solve equation of much x malmet O 10. I o solve executs by using Gauss O 11. We analyze the error in Erler's method, add ben minoduce some more advanced informatic equations | CO 8: A special case is the expression of a musical chord in terms of the volumes and frequencies of its constituent notes CO 9: We solved using either the method of undetermined coefficients or variation of parameters. CO 10: we can define a Finite Fourier Transform that produces a different set of n |
| and some consideration with a second | |
| COURSE Advanced numerical VIII-A-2 analysis analysis Advanced analysis analysis Advan | CO 1:The curve fit will produce an equation that can be used to findpoints anywhere along the curve. CO 2:In some cases, you may not be concerned about finding an equation. CO 3:Numerical differentiation is the process of findingthe numerical value of a derivative of a given function at a givenpoint CO 4:To find maximum and minimum problems CO 5:Estimate the derivatives (slope, curvature, etc.) of a function by using the function values at only a set of discrete points CO 6:They are used in practice for solving ordinary and partial differential equations as well as representing signals and systems. CO 7:Finding areas under curved surfaces, Centers of mass, displacement and Velocity, and fluid flow are other uses of integration |

| Dr.V.Rama Rao, M.A., Ph.D., | Dr.A.Balakrishna, M.Sc., Ph.D., |
|---|--|
| Secretary & Correspondent | Principal |
| (*) 3* A special case to the supression of a obtained chord in cataloof the volumes and crougheres of its constituent on is autointatics crodificients in variation of parameters (*) 10 we can gebre a fronte France transform that produces a different set of a | columns operations in different method CO 9:To solve equations in matrix method CO 10:To solve circuits by using Gauss elimination method CO 11:We analyse the error in Euler's method, and then introduce some more advanced important subclass are given by linear differential equations CO 12:Numerical symbolic and qualitative methods that are used for solving and analyzing linear and nonlinear equation. |
| COURSE VIII-A-3 Project work OPPOINT Shi s | Project Work: This project work provides an opportunity for the student to apply knowledge and skills obtained in Mathematics theory and practical coursework. From a list of relevant application level topics provided by the dept., Students choose one topic for study, based on their own interest. The study is followed by collective report submission and individual oral presentation. Attainment of this learning outcome is ensured and assessed by the concerned faculty member at everystage through direct as well as indirect guidance and monitoring |
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Program outcomes

The Department of Mathematics, MVR Degree College seeks to serve B.Sc Program students interested in careers related to Mathematics. The department has taken conscious efforts to nurture high quality teaching and research at UG level. Alongside we have also built good research infrastructure like applications of Differential Equations, Solid Geometry, Abstract Algebra, Real Analysis, Ring Theory and Vector Calculus, Linear Algebra and Numerical Analysis, Integral Transforms, Advanced Numerical Analysis etc. Our research is published in the best Mathematics reputed Journals In continuation with the Skill Development initiative of the Government of Andhra Pradesh, we have trained UG students in the campus placements skills. In order to cater to the diverse interests of students and employers, a total of 9 theory 9 practical courses and 1 project are offered as part of Mathematics domain in all five combinations