



M. S. P. Mandal's

Vinayakrao Patil Mahavidyalaya, Vajapur

Department of Mathematics

E-Learning Resources

Teaching Videos

Class	Paper Name and Paper code	Topic with YouTube link
F. Y. B. Sc.	Integral Calculus MAT-201	<ol style="list-style-type: none">1. Syllabus and Reduction formula-I View2. Reduction formula-2 View3. Reduction formula-3 View4. Reduction formula-4 &5 View5. Some important formulae View6. Integration of algebraic rational functions- Type-I (Non-repeated linear factors at denominator) View7. Integration of algebraic rational functions- Type-II(Non-repeated or repeated linear factors at denominator) View8. Integration of algebraic rational functions- Type-III(Linear or quadratic non-repeated factors at denominator) View

		<p>9. Integration of Trigonometric Functions $\sin^n x$ (if n is an odd integer) View</p> <p>10. Integration of Trigonometric Functions $\sin^n x$ (if n is an even integer) View</p> <p>11. Integration of $\sin^n x$, from 0 to π by 2 View</p> <p>12. Integration of $\cos^n x$ (Part-1) View</p> <p>13. Integration of $\cos^n x$ (Part-2) View</p> <p>14. Integration of $\cos^n x$ (Part-3) View</p> <p>15. Integration of $\cos^n x$ between 0 to π by 2 View</p> <p>16. Definite integral as the limit of sum View</p> <p>17. Areas of plane regions View</p> <p>18. Rectification, length of plane curves View</p> <p>19. Volumes and surfaces of revolution View</p> <p>20. Line integral, Surface integral and Volume integral View</p> <p>21. Gauss divergence theorem View</p> <p>22. Stoke's theorem and Green's theorem View</p>
--	--	--

F. Y. B. Sc.	Differential calculus MAT-101	1. Introduction to Differential calculus View
F. Y. B. Sc.	Differential equations MAT-102	1. Introduction to Differential equations View
S. Y. B. Sc.	Numerical analysis MAT-401	<ol style="list-style-type: none"> 1. Syllabus and introduction to numerical analysis View 2. Bisection method View 3. False position method View 4. Problems on false position method View 5. Newton-Raphson method View 6. Examples on Newton-Raphson method View 7. Generalized Newton's method View 8. Forward and backward differences View 9. Forward and backward differences-II View 10. Finite differences and relations between them View 11. Newton's forward and backward difference interpolation formula View 12. Lagrange's interpolation formula View 13. Newton's general interpolation formula View

		<p>14. Curve fitting (The Least square curve fitting method) View</p> <p>15. Approximation of functions (Chebyshev polynomial) View</p> <p>16. Gauss elimination and Gauss-Jordan method-I View</p> <p>17. Gauss elimination and Gauss-Jordan method-II View</p> <p>18. Method of factorization View</p> <p>19. Jacobi's and Gauss Seidel iterative method View</p> <p>20. Eigenvalue problem View</p> <p>21. Taylor' series method View</p> <p>22. Picard's method View</p> <p>23. Euler's method View</p> <p>24. Runge-Kutta method View</p>
--	--	--

<p>S. Y. B. Sc.</p>	<p>Number theory MAT-301</p>	<ol style="list-style-type: none"> 1. First principle of mathematical induction View 2. Division Algorithm View 3. Examples on division algorithm View 4. Greatest common divisor View 5. Properties of divisibility relation View 6. (Chapter-05, Chapter-06 and Chapter-07) Chinese remainder theorem, Fermat's theorem, number theoretic functions and Euler's generalization of Fermat's theorem. View
<p>T. Y. B. Sc.</p>	<p>Real analysis-II MAT-601</p>	<ol style="list-style-type: none"> 1. Syllabus, definition of metric and metric space View 2. Limits in metric spaces and continuous functions on metric spaces View 3. Open sets View 4. Closed sets View 5. More about open sets & connected sets View 6. Complete metric spaces View 7. Compact metric spaces View

		<p>8. Sets of measure zero View</p> <p>9. Upper sum and lower sum View</p> <p>10. Definition of Riemann integrable function View</p> <p>11. Properties of Riemann integrable function View</p> <p>12. Definition of Fourier series View</p> <p>13. Examples on Fourier series View</p>
<p>T. Y. B. Sc.</p>	<p>Real analysis-I</p> <p>MAT-501</p>	<p>1. Syllabus, sets and relations View</p> <p>2. Sets and relations part-II View</p> <p>3. Functions and real valued functions-I View</p> <p>4. Functions and real valued functions-II View</p> <p>5. Maximum and minimum of real valued functions, characteristic function View</p> <p>6. Properties of characteristic function View</p> <p>7. Equivalence and countability View</p> <p>8. Examples on countable set View</p> <p>9. Real numbers, the least upper bounds View</p> <p>10. (Chapter-3 & Chapter-4) Series of real numbers and Jacobians View</p>

T. Y. B. Sc.	Abstract algebra-I MAT-502	<ol style="list-style-type: none">1. Sets, functions and integers-I View2. Sets, relations and integers-II View3. Sets, relations and integers-III View4. Divisibility, congruence relation, the greatest common divisor and least common multiple View
--------------	-------------------------------	--