Course Number and Name		
BMA101 &Mathematics I		
Credits and Contact Hours		
3 & 60		
Course Coordinator's Name		
Mr.Padmanaban		
Text Books and References		
 Text Book: Ravish R.Singh and Mukkul Bhatt, "Engineering Mathematics-I" First Reprint, Tata McGraw Hill Pub Co. New Delhi.2011. 		
2. Grewal.B.S, "Higher Engineering Mathematics", 40 th Edition, Khanna Publi Delhi.2007.	cations,	
References:		
1.Ramana.B.V. "Higher Engineering Mathematics", Tata McGraw Hill Company, New Delhi, 2007.	l Publishing	
2. Glyn James, "Advanced Engineering Mathematics", 7 th Edition, Pearson Education, 2007.		
Course Description		
To make the students learn Mathematics in order to formulate and solve problems ef in their respective fields of engineering.	fectively	
Prerequisites Co-requisites		
+ 2 level Mathematics Nil	Nil	
required, elective, or selected elective (as per Table 5-1)		
Required		
Course Outcomes (COs)		
CO1 :Study the fundamentals of mathematics		
CO2 :Students learn multiple integral techniques		
CO3:Students gain knowledge in application of variables		
CO4: Find area and volume based on a function with one or more variables.		
CO5: Apply matrix operations to solve relevant real life problems in engineering.	-	
CO6:Formulate a mathematical model for three dimensional objects and solve		
Student Outcomes (SOs) from Criterion 3 covered by this Course		
COs/SO a b c d e f g h i j	k 1	
CO1 H		
CO2 M H		
CO3 H M		
CO4 L		
CO5 H L		
CO6	L	

List ofTopicsCovered

UNIT-1MATRICES 12

Characteristic equations- Eigen values and Eigen vectors of the real matrix- Properties- Cayley-Hamilton theorem(Excluding proof)- Orthogonal transformation of a symmetric matrix to diagonal form- Quadratic form- Reduction of quadratic form to canonical form by orthogonaltransformation.

UNIT-II THREE DIMENSIONALANALYTICALGEOMETRY 12

Equation of a Sphere- Plane section of a sphere- Tangent plane- Equation of cone- Right circular cone- Equation of a cylinder- Right circular cylinder.

UNIT-HIDIFFERENTIAL CALCULUS

12

Curvature in Cartesian coordinates- Centre and radius of curvature- Circle of curvature- Evolutes- Envelopes- Applications of Evolutes and Envelopes.

UNIT-IV FUNCTIONS OFSEVERALVARIABLES

12

Partial derivatives- Euler's theorem for homogeneous functions- Total derivatives-Differentiation of implicit functions- Jacobians- Taylor's expansion- Maxima and Minima- Method of Lagrangian multipliers.

UNIT-VMULTIPLEINTEGRALS

12

Double integration- Cartesian and Polar coordinates- Change of order of integration- Change of variables between Cartesian and Polar coordinates- Triple integration in Cartesian coordinates- Area as double integral- Volume as tripleintegral.