

Information about minor project

Principal Investigator: Dr. WARSHA DANGE

Project Ref. No. : 47-995/09(WRO)

Title : “Study of some thermoelastic problem in solids ”

Funding agency : **UGC**

Sanctioned amount : 30,000

Received : 20,000

Total grant : 24,525

Status : Completed year **2014-15**

SUMMARY OF MINOR PROJECT:

This Project - “**Study Of Some Thermoelastic Problems In Solids**” comprises in three chapters containing the study of problems of thermoelasticity in real homogeneous material.

In chapter 1:

Introductory remarks and historical survey of the connected literature along with the theorems on integral transforms and details of other analytical methods used in the Project have been included.

Chapter 2:

In this chapter the transient thermoelastic problem of solid circular cylinder in which sources are generated according to the linear function of the temperature occupying the space $D = \{(x, y, z) \in R^3 ; 0 \leq (x^2 + y^2)^{1/2} \leq b ; -h \leq z \leq h\}$ where $r = (x^2 + y^2)^{1/2}$. The temperature distribution, displacement function and stress function at any point of a Solid Circular Cylinder are investigated with known radiation type boundary conditions by using Finite Hankel Transform and Finite Marchi-Fasulo transform techniques. The solutions are obtained in terms of Bessel's function in the form of infinite series and illustrated graphically.

Chapter: 3

In this chapter the transient thermoelastic problem of thick solid circular plate with heat source have been considered . The temperature distribution , thermoelastic displacement function and thermal stresses at any point of a thick solid circular plate are investigated with known radiation type boundary conditions by using finite transform techniques . The solutions are obtained in terms of Bessel's function in the form of infinite series and illustrated graphically.