1. METHODOLOGY:

In order to achieve the objectives of the proposed research work following methodology will be adopted.

1) Literature Review: in this present survey following points related to hip joint replacement will be studied.
   - Considering Old And New Theories Of Biomechanics Of Hip Joint,
   - Forces Acting On Hip Joint For Various Activities From Previous Researchers.
   - Present Issues Related To Hip Orthoplasty.
   - Artificial Joint Replacement Techniques.
   - Various Types Biomaterials And Biocomposites Used Prosthesis.
   - Analysis And Design Of Artificial Hip Joint Prosthesis.

2) Software Analysis:
   - In the present work 3-D FEM modeling of the hip prosthesis and femur bone is carried out to evaluate the stress and displacement pattern and load transfer mechanism of the Indus prosthesis.
   - Finite element analysis of Hip stem-femur bone composite, using Indus and hip prosthesis to check initial stability.
   - Comparing suitability of Indus prosthesis with respect to initial stability of prosthesis in bone cavity.

3) Experimental work:
   - Experimentation to study the prosthesis for stress and displacement/loosening pattern for the design life of the prosthesis, and compare it with FEM analysis results.
   - Comparing analytical and experimental results of Indus implant by using various hip composite materials.
   - Suggesting future geometry changes for better and optimum performance of Indus Prosthesis.
Figure 9: The modern approach to the design, fabrication and clinical use of the hip prosthesis.

8 WORK PLAN

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<tr>
<th>Sr. No</th>
<th>Period</th>
<th>Plan of Work</th>
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| 1      | First Year  | • Completion of Course Work  
          |   • Study of literature and extensive survey  
          |   • Comparing the results  
          |   • Finalization of Topic  
          |   • Preparation of Synopsis  
          |   • Presentation of Topic  |
| 2      | Second Year | • Implementing the method  
          |   • Processing the material  
          |   • Finding out the results  
          |   • Comparison of the result  
          |   • Paper Publication  |
|        |             | • Analysis of Result  
          |   • Preparation of Summary  
          |   • Checking of Plagiarism  
          |   • Paper Publication  
          |   • Finalizing the thesis  
          |   • Pre-thesis viva |
| 3 | **Third Year** | • Any correction from suggestions  
• Hard Binding of Thesis  
• Thesis Submission to SJTTU  
• Final Defence |