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Guided By

**PROF.  
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## **SMT. S. R. PATEL ENGINEERING COLLEGE, UNJHA**

### **Project Title**

### **ANALYSIS OF BEAM REINFORCEMENT WITH GFRP BAR**

#### **Abstract:**

Concrete, the most commonly used construction material is used in construction industry since a long time (from first decade of 19th century). With the passes of time many advancement has been taken place in construction industry due to improvement in various parameters of concrete. The main parameters that one should consider before selection of a particular kind of concrete are durability, compressive strength, tensile strength, shear strength and economy as well. Out of these parameters tensile strength is of prime concern, and several efforts have been taken into consideration to improve same. In the present study GLASS FIBRE REINFORCED POLYMER (GFRP) reinforcement has been used. It subsequently improves the tensile strength of concrete. The main advantage of using it is that one can get the Light Weight Concrete by replacing conventional iron reinforcement. In the present study GFRP having diameter 10mm and length of 66 cm has been used. In the present study the analytical comparison of M-20 concrete grade of concrete and M-20 concrete reinforced with GFRP has been carried out. Generally the flexural strength of M-20 concrete varies from 3.10 to 3.50 MPa, while the flexural strength of GFRP concrete varies in the range of 7 to 10.27 MPa .GFRP concrete don't satisfy the economy parameter. But, it fulfill corrosion resistance parameter and unit weight parameter of concrete. It can be widely used in sever extreme environmental conditions (structures exposed to saline spray), chemical industry etc. A total of 16 beams were tested to study the influence of adding steel fibers (SF) on the ductility of the concrete beams reinforced with fiber reinforced plastic bars (FRP-beams).

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