

**PERFORMANCE ANALYSIS OF OFDM, FBMC AND UFMC  
MODULATION SCHEMES FOR 5G MOBILE COMMUNICATION  
MIMO SYSTEMS.**

*A project report submitted to Jawaharlal Nehru Technological University,  
Kakinada in the partial fulfillment of the requirements for the award of degree of*

**BACHELOR OF TECHNOLOGY  
In  
ELECTRONICS AND COMMUNICATION ENGINEERING**

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(2018 - 2022)**

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## CERTIFICATE

This is to certify that the project work entitled "PERFORMANCE ANALYSIS OF OFDM, FBMC AND UFMC MODULATION SCHEMES FOR 5G MOBILE COMMUNICATION MIMO SYSTEMS" Is being submitted for the partial fulfilment of requirements for the award of Bachelor of Technology in Electronics & Communication Engineering is a bonafide work done by **Ch. REVATHI (18811A0408), U. MALATHI (19815A0424), G. JAYA VARDHINI (18811A0409), D. ANUSHA (18811A0438), R. SAI SHANKAR (19815A0420)** under the guidance during year 2021 -2022 and it has been found suitable for acceptance according to the requirements of the university.



**INTERNAL GUIDE**

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## ABSTRACT

The rapid development in the field of Internet and mobile communication systems has demanded the technology of the 5<sup>th</sup> generation communication mimo systems to develop rapidly over the past few years. The name given to the next generation of wireless communication is 5G. Till now 4G provided the speed up to few mbps but the main drawback lies in reproducing the real time applications. In this scenario, 5<sup>th</sup> generation systems come into picture. 5g modulation schemes are developed exclusively for the Internet, video, voice, and data services. The OFDM has few disadvantages high peak power to average power ratio resulting in requirement of the high-power amplifiers. So, to overcome this problem, 5g modulation schemes Filter bank multi carrier systems and universal filter multicarrier systems are used. As we go higher the frequency range, there is an issue of frequency selectivity and thus by using the mimo techniques the problem of frequency selectivity can be solved. In this paper, we have compared the performance analysis of the Orthogonal frequency division multiplexing (OFDM) mimo system, Filter bank multicarrier (FBMC) mimo systems and Universal filter multicarrier (UFMC) mimo systems with respect to Bit error rate, power spectral density, data rate and issue of spectral confinement which is observed in FBMC and UFMC is resolved and thus reducing the complexity of the 5g system.