“Narrow-band microwave planar filter using multiple-poled hairpin resonators”

# A

**MINOR PROJECT REPORT**

***Submitted to***

***partial fulfillment of the requirement for the award of the degree of***

**BACHELOR OF TECHNOLOGY IN**

**ELECTRONICS & TELECOMMUNICATION ENGINEERING**



|  |  |  |
| --- | --- | --- |
|  | **Submitted By** |  |
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**Under the Guidance of**

**Prof. Sunil Kumar Singh**

**(Professor)**

**DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING**

**JABALPUR ENGINEERING COLLEGE, JABALPUR (M.P.)**

**(Established in 1947 as Government Engineering College, Jabalpur)**

**(Declared Autonomous by Government of Madhya Pradesh and RGPV, Bhopal)**

**SESSION: 2020-2024**

# DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING



**CANDIDATE’S DECLARATION**

*We hereby declare that the work, which is being presented in this Minor Project Report, entitled* ***“Narrow-band microwave planar filter using multiple-poled hairpin resonators”*** *in partial fulfillment for the award of* ***Bachelor of Technology*** *degree in* ***Electronics and Telecommunication Engineering****, submitted in the Department of Electronics and Telecommunication Engineering, Jabalpur Engineering College, Jabalpur, is an authentic record of our own work carried out under the guidance of* ***Prof. Sunil Kumar Singh, Professor, Electronics and Telecommunication Engineering, Jabalpur Engineering College, Jabalpur.***

*We have not submitted the matter embodied in this report for award of any other degree or diploma.*

***Harshwardhan Thakur (0201EC201038)***

***Kanak Dayma (0201EC201040)***

***Kartik Bauria (0201EC201042)***

***Keshav Keshari (0201EC201043)***

***Rita Devi Gond (0201EC213D07)***

**Date:**

**Place:**

**DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING**



***CERTIFICATE***

*This is to certify that Minor Project Report entitled* ***“****Narrow-band microwave planar filter using multiple-poled hairpin resonators****”*** *submitted by* ***Harshwardhan Thakur (0201EC201038), Kanak Dayma (0201EC201040), Kartik Bauria (0201EC201042), Keshav Keshari (0201EC201043), Rita Devi Gond (0201EC213D07)*** *have been carried out under my guidance and supervision. This report is forwarded for submission towards the partial fulfillment for the award of* ***Bachelor of Technology*** *degree in* ***Electronics and Telecommunication Engineering.***

Forwarded to:

**Dr. Bhavana Jharia**

(Professor & HOD)

Supervisor:

**Prof. Sunil Kumar Singh**

( Professor)

**DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING**



**CERTIFICATE OF APPROVAL**

*This is to certify that Minor Project Report entitled* ***“****Narrow-band microwave planar filter using multiple-poled hairpin resonators****”*** *submitted by* ***Harshwardhan Thakur (0201EC201038), Kanak Dayma (0201EC201040), Kartik Bauria (0201EC201042), Keshav Keshari (0201EC201043), Rita Devi Gond(0201EC213D07)*** *is accepted towards partial fulfillment for the award of* ***Bachelor of Technology*** *degree in* ***Electronics and Telecommunication Engineering.***

**INTERNAL EXAMINER EXTERNAL EXAMINER**

**DATE: DATE:**

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***Harshwardhan Thakur***

***Kanak Dayma***

***Kartik Bauria***

***Keshav Keshari***

***Rita Devi Gond***