🎓 LaTeX Thesis Template for Dr. B. C. Roy Engineering College

A professional, feature-rich LaTeX template for undergraduate and postgraduate thesis at **Dr. B. C. Roy Engineering College, Durgapur**. This template provides automated formatting, multi-student support, and institutional compliance while maintaining academic presentation standards.

With Regards
Kingsuk majumdar, PhD(EE)

🌟 Key Features

- 📄 **Professional A4 formatting** optimized for academic thesis
- 👥 **Multi-student support** (1-3 students for UG, 1 for PG) with automatic conditional rendering
- 🖼️ **Integrated photo handling** for author biographies with wrapfigure layout
- 🎨 **Customizable headers, footers, and title pages**
- 📝 **Justified text without hyphenation** for clean appearance
- 💻 **MATLAB code highlighting** via mcode.sty package
- 🔧 **Comprehensive error handling** and wrapper commands
- 📚 **Complete frontmatter and backmatter** templates
- 🏷️ **Short title support** for footers
- 📖 **Automatic bibliography** and abbreviations handling
- 🔄 **Degree-specific configurations** (UG/PG requirements)

📁 Directory Structure

```
ug-thesis-template/
|-- main.tex                    # Main document file (User Input Section)
|-- thesis.cls                  # LaTeX class file (Formatting Engine)
|-- references.bib              # Bibliography database
```

```
|-- mcode.sty                   # MATLAB code highlighting package
|-- README.md                   # Documentation file
|-- LICENSE.lic                 # License information
|-- Frontmatter/
|   |-- Declaration.tex         # Student declaration page (Don't Change
it)
|   |-- Certificate.tex         # Supervisor approval certificate (Don't
Change it)
|   |-- Acknowledgment.tex      # Acknowledgments section
|   |-- Abstract.tex           # Abstract and keywords
|   +-- Acronyms.tex           # List of abbreviations and nomenclature
|-- Chapters/
|   |-- Chapter01_Introduction.tex    # Introduction chapter (MUST BE)
|   |-- Chapter02_Literature.tex     # Literature review (MUST BE)
|   |-- Chapter02_Table.tex          # Table examples
|   |-- Chapter03_Figure.tex         # Figure examples
|   |-- Chapter04_Math.tex           # Mathematical expressions
|   |-- Chapter03_Methodology.tex    # Research methodology
|   |-- Chapter04_Implementation.tex # Implementation details
|   |-- Chapter05_Results.tex        # Results and analysis (MUST BE)
|   +-- Chapter06_Conclusion.tex     # Conclusions and future work (MUST
BE)
|-- Backmatter/
|   |-- PublicationsList.tex    # Publications by authors
|   +-- AuthorBio.tex          # Author biographies (Strictly PG/PhD only)
|-- Figures/
|   |-- college_logo.png       # Institutional logo (required)
|   |-- StudentOne_photo.jpg   # Student photograph
|   |-- StudentTwo_photo.jpg   # Student photograph
|   |-- StudentThree_photo.jpg # Student photograph
|   |-- Chapter01/             # Chapter-wise figure organization
|   |-- Chapter02/
|   |-- Chapter03/
|   |-- Chapter04/
|   |-- Chapter05/
|   +-- Chapter06/
+-- OUTPUT/                    # Generated output files (after
compilation)
    |-- main.pdf              # Final thesis document
    |-- main.aux              # Auxiliary file
    |-- main.bbl              # Bibliography file
    |-- main.blg              # Bibliography log
    |-- main.log              # Compilation log
    |-- main.toc              # Table of contents
    |-- main.lof              # List of figures
    +-- main.lot              # List of tables
```

🚀 Quick Start

📦 Requirements

- **LaTeX Distribution**: TeX Live (Linux/Mac) or MiKTeX (Windows)
- **Compiler**: pdfLaTeX
- **OS**: Manjaro Linux (recommended) or any Linux distribution
- **Editor**: TeXstudio, VS Code, Overleaf, or any LaTeX editor

🔧 Installation (Manjaro Linux)

```
# Update system repositories
sudo pacman -Syu

# Install complete LaTeX distribution
sudo pacman -S texlive-most texlive-bibtexextra

# Alternative: Install full TeX Live distribution
sudo pacman -S texlive-core texlive-bin texlive-latexextra texlive-
fontsextra
```

📥 Getting Started

1. **Clone the repository**

   ```
   git clone [Repository link will be added here]
   cd ug-thesis-template
   ```

2. **Configure your thesis** (Edit `main.tex` USER INPUT SECTION)

   ```
   %% Thesis Information
   \ThesisTitle{Your Thesis Title Here}
   \ShortTitle{Short Title for Footer}
   \Department{Department of Electrical Engineering}
   \NumberOfStudents{3}  % 1-3 for UG, 1 for PG

   %% Student Information
   \StudentOne{Your Name}
   \RollOne{18/EE/001}
   \EmailOne{your.email@bcrec.ac.in}
   ```

3. **Add your content**
   - Edit `Frontmatter/Abstract.tex`
   - Edit `Frontmatter/Acknowledgment.tex`
   - Edit chapter files in `Chapters/` directory
   - Add references to `references.bib`

4. **Add images**

- Place `college_logo.png` in `Figures/` directory
- Add student photos as specified in configuration
- Organize chapter figures in respective subdirectories

⚡ Compilation

🖥️ Offline Compilation (Manjaro Linux)

```
# Navigate to project directory
cd /path/to/ug-thesis-template/

# Create output directory
mkdir -p OUTPUT

# Primary compilation sequence
pdflatex main.tex
bibtex main
pdflatex main.tex
pdflatex main.tex

# Move generated files to OUTPUT directory
mv main.pdf OUTPUT/
mv *.aux *.bbl *.blg *.log *.toc *.lof *.lot OUTPUT/ 2>/dev/null || true
```

🌐 Online Compilation (Overleaf)

1. **Import Template**: Use the Overleaf template link: [Overleaf template link will be added here]
2. **Set Compiler**: Configure to use `pdfLaTeX` (2023/24 or above)
3. **Bibliography Engine**: Set to `bibtex`
4. **Collaborate**: Share with team members for multi-student projects

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🎯 Degree-Specific Configurations

🎓 Undergraduate (UG) Requirements

- **Maximum Students**: 3 students per group
- **Author Biography**: Not included
- **Degree Type**: Bachelor of Technology (B.TECH)
- **Paper Code**: PWEE881

```
% Configuration for UG
\NumberOfStudents{3}
\DegreeType{Bachelor of Technology (B. TECH)}

% Exclude author biography
%\include{Backmatter/AuthorBio} % Commented out for UG
```

🎓 Postgraduate (PG) Requirements

- **Number of Students**: 1 student only
- **Author Biography**: Mandatory
- **Degree Type**: Master of Technology (M.TECH)

```
% Configuration for PG
\NumberOfStudents{1}
\DegreeType{Master of Technology (M. TECH)}

% Include author biography
\include{Backmatter/AuthorBio} % Required for PG
```

💡 Advanced Features

🖥️ MATLAB Code Highlighting

```
\begin{lstlisting}[style=Matlab-editor]
function result = myFunction(input)
    % Your MATLAB code here
    result = input * 2;
    fprintf('Result: %f\n', result);
end
\end{lstlisting}
```

📊 Figure and Table Management

```
\begin{figure}[H]
    \centering
    \includegraphics[width=0.8\textwidth]{Chapter01/figure_name.png}
    \caption{Descriptive caption for the figure}
    \label{fig:figurelabel}
\end{figure}
```

🧮 Mathematical Expressions

```latex
\begin{equation}
    P = V \cdot I \cdot \cos(\phi)
    \label{eq:power}
\end{equation}
```

🛠️ Customization

🎨 Colors and Styling

Modify colors in `thesis.cls`:

```latex
\definecolor{darkblue}{rgb}{0.0, 0.0, 0.5}  % Custom colors
```

📐 Page Layout

Adjust geometry in `thesis.cls`:

```latex
\RequirePackage[
    a4paper,
    textwidth=15.5cm,
    textheight=23cm,
    left=3cm,
    right=2.5cm,
    % ... other settings
]{geometry}
```

🏆 Best Practices

✅ Recommended Practices

1. **Consistent Naming**: Use descriptive file names with chapter prefixes
2. **Image Resolution**: Maintain high-resolution images (300 DPI minimum)
3. **Backup Strategy**: Regular backup using version control systems
4. **Validation Testing**: Periodic compilation testing

❌ Common Issues and Solutions

Issue	Solution
Missing Packages	`sudo pacman -S texlive-most texlive-bibtexextra`

Issue	Solution
File Path Issues	Verify relative paths for figures and includes
Encoding Problems	Ensure UTF-8 encoding for all text files
Bibliography Errors	Check reference format and .bib file syntax

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📄 License

This project is licensed under the **MIT License** - see the LICENSE.lic file for details.

🔖 Third-Party Components

- **mcode.sty**: BSD License (Florian Knorn)
- **Standard LaTeX Packages**: Various open-source licenses
- **TeX Live Distribution**: TeX Users Group License

🤝 Contributing

We welcome contributions! Please see our contributing guidelines:

1. Fork the repository
2. Create a feature branch (`git checkout -b feature/amazing-feature`)
3. Commit your changes (`git commit -m 'Add amazing feature'`)

4. Push to the branch (`git push origin feature/amazing-feature`)
5. Open a Pull Request

🐛 Reporting Issues

When reporting issues, please include:

- LaTeX distribution and version
- Operating system
- Complete error messages
- Minimal example that reproduces the issue

📞 Support & Contact

- **GitHub Issues**: Create an issue for bug reports and feature requests
- **Email**: kingsuk.majumdar@bcrec.ac.in
- **Institution**: Dr. B. C. Roy Engineering College, Durgapur
- **Department**: Electrical Engineering

🔗 Quick Links

Platform	Link	Description
🐙 **GitHub**	Source Code	Source code and issues
📝 **Overleaf**	[Overleaf template link will be added here]	Online template
📚 **Documentation**	[Wiki/Docs]	Detailed documentation
🏫 **Institution**	BCREC Website	College website

🙏 Acknowledgments

- **Dr. B. C. Roy Engineering College** for institutional support
- **Florian Knorn** for the excellent mcode.sty package
- **LaTeX Community** for comprehensive packages and documentation
- **Contributors** who helped improve this template

📈 Version History

- **V4.0** (2025-09-14): College logo updated and certificate page space adjustment
- **V3.0** (2025-07-07): Enhanced with global variables and improved structure
- **V2.0** (2025-07-05): Added multi-student support and conditional rendering
- **V1.0** (2025-07-01): Initial release with basic functionality

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⭐ Star this repository if it helped you! ⭐

Made with ❤️ for students of Dr. B. C. Roy Engineering College