



ಕುವೆಂಪು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

ಸಂಖ್ಯೆ:ಭೌವಿ; 255

;2025-26

ಅಧ್ಯಕ್ಷರು (ಬಿ.ಒ.ಎಸ್.)  
ಸ್ನಾತಕೋತ್ತರ ಭೌತಶಾಸ್ತ್ರವಿಭಾಗ  
ಕುವೆಂಪು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ  
ಶಂಕರಘಟ್ಟ  
ದಿನಾಂಕ; 23-2-2026

ಗೆ,  
ಉಪ ಕುಲಸಚಿವರು  
ಸಿಂಡಿಕೇಟ್ ವಿಭಾಗ  
ಕುವೆಂಪು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ  
ಶಂಕರಘಟ್ಟ

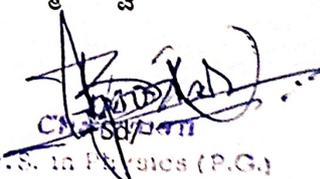
ಮಾನ್ಯರೆ,

ವಿಷಯ; ಬಿ.ಓ.ಎಸ್ ಯು.ಜಿ ಸಭಾ ನಡವಳಿ ಮತ್ತು ಪಠ್ಯಕ್ರಮ ಕಳುಹಿಸಿಕೊಡುತ್ತಿರುವ ಕುರಿತು

ಈ ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ದಿನಾಂಕ; 17-02-2026 ರಂದು ನಮ್ಮ ವಿಭಾಗದಲ್ಲಿ  
ಜರುಗಿದ ಬಿ.ಓ.ಎಸ್ ಯು.ಜಿ ಸಭಾ ನಡವಳಿ ಮತ್ತು ಪಠ್ಯಕ್ರಮವನ್ನು ಇದರೊಂದಿಗೆ ಲಗತ್ತಿಸಿ ತಮಗೆ  
ಕಳುಹಿಸಿಕೊಡಲಾಗಿದೆ..

ವಂದನೆಗಳೊಂದಿಗೆ

ತಮ್ಮ ವಿಶ್ವಾಸಿ

  
B.O.S. in Physics (P.G.)  
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**PROCEEDINGS OF THE B.O.S. IN PHYSICS (UG) MEETING HELD ON 17/02/2026**

The Chairman formally welcomed the members of the board for the meeting and the meeting started at 3.00 pm in the Department of Physics, Kuvempu University.

The board scrutinized and approved the new syllabus of the following paper of Skill Enhancement Course (Compulsory) titled 'Electronics and Microsoft Excel for Physics'

The board framed & approved above mentioned Syllabus of (UG) for BSC IV<sup>th</sup> Semester.

The meeting concluded with vote of thanks.

**Members Present :**

1.Dr.Devidas G. B

2. Narasimha S. A

3. Nagaraja S.V

4. Vishwas K.S

Chairman

Member

Member

Member

**Members Absent :**

1.Dr.Nagaraja N

2.Dr.Niranjana A.R

Member

Member

Chairman

Chairman

B.O.S. in Physics (P.G)

KUVEMPU UNIVERSITY

SHANKARAGHATTA-577 453

Shimoga Dist

Bachelor of Science (B.Sc.) – Semester Scheme  
Curriculum Structure for Undergraduate Programme  
IV SEMESTER (2025-26)

Sl. No	Course/ Paper Code	Title of the Paper	Subject Category	Teaching Hours/ Week	Semester End Exam	Internal Assessment	Total Marks	Credits	Duration of Exam
1	24SECPH1	Electronics and Microsoft Excel for Physics	Skill Enhance ment Course	04 Hrs/ week	40 marks	10 marks	50 marks	02	3 Hrs

# SKILL ENHANCEMENT COURSE

Semester – IV

24SECPH1: Electronics and Microsoft Excel for Physics

No. of Teaching Hours/Week: 4 Hrs/Week

Total Teaching Hours: 60Hrs

Maximum Marks: 50 (40 Semester End + 10 Internal Assessment)

Credits: 02

## Course Learning Objectives

- To develop hands-on skills in basic electronic circuit construction and testing.
- To familiarize students with semiconductor devices and digital logic circuits.
- To introduce computational and data analysis skills using Microsoft Excel.
- To enable students to apply numerical and graphical methods in solving Physics problems.

## Course Outcomes

After successful completion of this course, students will be able to:

- Construct and analyze basic electronic circuits using breadboards.
- Study and interpret V–I characteristics of semiconductor devices.
- Verify fundamental laws such as Kirchhoff's laws and De Morgan's theorems experimentally.
- Analyze experimental data using Microsoft Excel.
- Perform curve fitting, interpolation, matrix operations, and numerical methods using spreadsheets.
- Prepare scientific graphs and interpret physical relationships quantitatively.

## PART- I: ELECTRONICS

(All experiments are to be performed on a breadboard)

### List of Experiments

1. **V–I characteristics of a PN junction diode:** To study the forward and reverse bias V–I characteristics of a PN junction diode and determine the knee voltage.
2. **Zener Diode as a voltage regulator:** To study the voltage regulation characteristics of a Zener diode.
3. **Verification of De Morgan's Theorems Using Logic Gates:** To verify De Morgan's theorems using logic gates on a breadboard
4. **Kirchhoff's Laws for a DC Network:** To verify Kirchhoff's voltage and current laws for a given DC circuit.
5. **Temperature Measurement Using Thermistor (NTC):** To study the variation of resistance of an NTC thermistor with temperature and determine the temperature coefficient.
6. **Temperature Measurement Using LM35 Sensor:** To measure temperature using the LM35 temperature sensor and verify its linear response.

7. **Light Intensity Measurement Using LDR:** To study the variation of resistance of a Light Dependent Resistor (LDR) with light intensity and verify its inverse relationship.

Note: Any suitable experiment of appropriate academic standard may be included subject to the availability of laboratory instruments. A minimum of four experiments from Part I shall be carried out in a semester.

## **PART- II: MICROSOFT EXCEL FOR PHYSICS**

(Required Software: Microsoft Excel or Google Sheets)

1. **Law of Refraction:** To measure the index of refraction by applying Snell's law and curve-fitting to the data. Ref [2] pages 9-1 to 9-3.
2. **Equation of motion:** To measure the traveling distance of a projectile, and to compare the acquired data with the theoretical prediction and numerically solve the equations of motion by applying the Euler method. Ref [2] pages: 3-1 to 3-6
3. **Periodic Motion:** To compare the theoretical expression of the oscillation period of a pendulum through measurement and estimate position for the minimum period using data interpolation. Ref [2] pages 4-1 to 4-6
4. **Lissajous figures:** To create and analyze Lissajous figures. Ref [2] pages 5-1 to 5-
5. **Radioactive Decay:** To study the law of radioactive decay by analyzing exponential decay data and to determine the decay constant and half-life using Microsoft Excel.
6. **Inverse Square Law:** To verify the inverse square law using intensity-distance data and to analyze the relationship using graphical and curve-fitting methods in Microsoft Excel (log-log plot).
7. **Newton's Law of Cooling:** To verify Newton's law of cooling by analyzing temperature-time data and determining the cooling constant using Excel.

Note: Any suitable physics problem of appropriate academic standard may be included to demonstrate additional Excel techniques. A minimum of four experiments from Part II shall be carried out in a semester.

**Suggested Evaluation Pattern:** Semester End Examination – 40 Marks (3 Hours)

One question to be answered from either:

- Part I – Electronics (Complete circuit construction on breadboard), OR
- Part II – Excel for Physics (Preparation of worksheet, calculations, graphs, and analysis).

### **References:**

- [1] B.Sc. Practical Physics – C L Arora, S. Chand Publishing (2001).
- [2] Numerical Calculation for Physics Laboratory Projects Using Microsoft EXCEL - Shinil Cho, Morgan & Claypool Publishers, 2019.

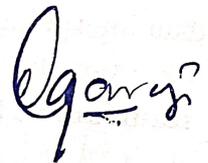
## Web References:

- [1] Physics: Excel Skills – Burrows Physics  
<https://www.youtube.com/playlist?list=PLM1ctK9jXJ1KtfMABJjTdxil1qQbch7oM>
- [2] Using Excel in Physics – Adam Lightman  
<https://www.youtube.com/watch?v=ISCfMAQ-PfQ&t=474s>
- [3] Excel in College Physics Lab – Steve H  
<https://www.youtube.com/watch?v=7sLDno4F-aI>
- [4] How to make a scientific graph in Excel - Doug McNally  
<https://www.youtube.com/watch?v=657w2QjURvs>

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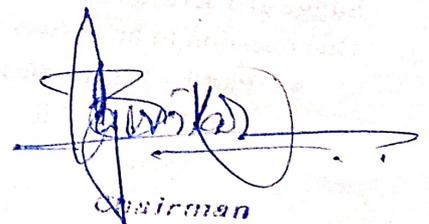


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Narasimha.S.A

4. VISHWAS . K. S  
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