Department of Physics
School of Basic & Applied Sciences
H.B.T.U. Kanpur
Minutes of the BoS Meeting of Physics Department

An online meeting of Board of Studies (BoS) was organised by the Physics Department on 18.10.2022 at 1:15P.M.to discuss the Course Curriculums of the Subject Physics and to introduce two new courses namely: Open Elective Course (Quantum Computing) & Value Added Course (MS Word and Excel) in view of NEP-2020 to be implemented from academic session 2022-23 for B.Tech. Programme (Engg. & Technology Branches) of this University as per AICTE guidelines. The following members participated in the meeting through online mode:

S. No.	Name of the BoS Member	Address	Designation
1.	Dr. S.K.Sharma (Convener)	Department of Physics, HBTU Kanpur.	Professor & Head Physics and Convener of BoS
2.	Dr. R.K.Shukla (Member)	Department of Physics, University of Lucknow, Lucknow.	Professor
3.	Dr. S.K.Tripathi (Member)	Department of Physics, Panjab University, Chandigarh.	Professor
4.	Dr. Balak Das (Member)	Department of Physics, University of Lucknow, Lucknow.	Professor
5.	Dr. D.K.Dwivedi (Member)	Department of Physics, MMM University of Technology, Gorakhpur.	Professor
6.	Dr. Kedar Singh (Member)	School of Physics Sciences, JNU New Delhi.	Professor
7.	Dr. Hari Om Yadav (Member)	Senior Principle Scientist,Council of Scientific & Industrial Research, New Delhi (Presently Registrar, IIT Jodhpur).	Senior Principle Scientist, (Presently Registrar, IIT Jodhpur)
8.	Dr. Divya Somvansi (Member)	Department of Physics, HBTU Kanpur.	Assistant Professor
9.	Dr. Braj Bhusan Singh (Member)	Department of Physics, HBTU Kanpur.	Assistant Professor

After welcoming the members in the third meeting of the BoS of the Physics Department, a thorough discussion on the Course Curriculums of Physics took place as per "Model Curriculum for Undergraduate Degree Courses in Engineering & Chemical Technology, January 2018 (Volume –I and Volume – II) of All India Council for Technical Education (AICTE).

The following decisions were taken:

1. All members were agreed to continue the presently running course (BPH 151/152) with minor suggestions.
2. All the suggestions have thoroughly been incorporated in course curriculums at the appropriate places.
3. All the members agreed with the course content to be taught to new entrants of I-B.Tech. Programm (Engg. & Chemical Technology) from the forthcoming academic session 2022-23.
4. All the members have approved the course content and course structure of newly introduced Open Elective Course (Quantum Computing) & Value Added Course (MS Word and Excel).
5. The above modifications are effective from the academic session 2022-23 for I-Year B.Tech. Programm (Engg. & Chemical Technology) which is scheduled to be start from November 2022 onwards.

18/10/2022
(Dr. Braj Bhusan Singh)
Member

Divya Somvansi 18/10/2022.
(Dr. Divya Somvansi)
Member

18.10.2022
(Prof. S. K. Sharma)
Convener & HoD Physics

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VALUE ADDED COURSE
Department of Physics, HBTU, Kanpur

Course Name	**MS Word and Excel**
Duration	**30 hrs.**
Credit	**00**

About the Course:

This course is an introduction to MS Word and Excel programs to learn different types of document preparation and arrangement of data. The course introduces students to the basic and advanced functions of MS Word and Excel sheet. Students will learn the use of MS Word and the spreadsheet program (MS Excel).

Course Objectives:

After completion of the course, students will be able:

1. To prepare various reports, letters, and documents in the desired formats.
2. To organize and handle big data.
3. Better chances of employability.

Course Content

UNIT 1: INTRODUCTION MS OFFICE:

Introduction to the window-based Computer Operating System, Application Software, Windows, Account Creation, Password Changes, Lock this Computer Facility, Sleep, and Power Saving mode, Installation of MS Office, Organizations of Folder and Files.

UNIT 2: MS WORD:

Introduction, Creation of New Document Files and Saving, Different File Formats, Layout of the Page, Margin, Orientation, Size, Columns, Page Breaks, and Page Set-Up. Page Scrolling and Search Command, Word Options, and Settings, Hyphenation, Indent Spacing. Alignment, Home Tab, Cut, Copy and Paste, Font Size and Type, Formatting a Paragraph, Subscript, and Superscript, Paragraph Mark, Highlight Text, Find, Replace, Select, Case Change, Line Spacing, Colure a Text, Style of Writing.

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Print Layout, Read Mode, Immersive Reader, Outline, Draft, Side to Side, Ruler, Gridline, Navigating Pane, Zoom, Multiple Page, New Window, Arrange All, Split, Switch Windows, Macros, Properties.

UNIT 3: EXCEL SPREADSHEET

Introduction, how to start Excel Sheet, Concept of Work Sheets and Work Book, Naming Work Books and Work Sheets, Organization of Work Books and Sheets, Introduction to Rows, Columns and Cells, Formatting of Rows and Columns, Cell Style, Insert, Delete, Format, Auto Sum, Sort and Filter, Find and Select.
Pivot Table, Table, Picture, Shapes, Icons, 3D Model, Smart Art, Screen Shot, Get Add-In, Worksheet & Charts, Keyboard Shortcuts.

Recommended Charts, Maps, Pivot Chart, 3D Map, Timeline, Link, Text, Symbol, Slicer Page Layout, Margin, Themes, Align, Print Area.
Formulas, Insert Functions (Sum, Average, Min, Max, Count, etc.), Calculations, Lookup and Reference, Error Checking, Financial and Logical Functions.

Get and Transform Data, Queries and Connections, Sort, Data Tools, Forecast Sheet, Outline.

Filtering Data (Filter & Advanced Filter), Conditional Formatting, Data Validation, and Subtotals. Hide and Protect Sheet, Book, Cells, Inserting Pictures and Objects, Freezing Panes, Page Setup, Print Area, Printing.

ReferenceBooks:

(1) Mastering MS office: Concise Hand Book with Screenshots by Bittu Kumar, V&S Publishers, Delhi
(2) The New Features of Excel 2019/office 265 by Lokesh Lalwani, BPB Publications
(3) Excel with Microsoft Excel: Comprehensive & Easy Guide to Learn Advanced MS Excel by Naveen Mishra, Penman Books
(4) Microsoft word, Excel, and PowerPoint: Just for Beginners by Dorothy House, Outskirts Press

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(Enclosure -III)

Open Elective course

Department of Physics, HBTU, Kanpur

Course Name	Quantum Computing
Duration	20-25 Hours
Credit	2
L-T-P	2-0-0

About the Course: This course is a basic introduction to students to fundamental and necessary knowledge of Quantum computation.

Course Objective: At the end of this course, the students will be able:

1. To learn about fundamentals of Quantum computation

2. To understand the introduction to Quantum systems and Quantum circuits

Course Content:

Unit-I: Fundamental elements of quantum information processing

Quantum bits, Quantum physics and computation, Diracnotation and Hilbert Spaces, Operators, the spectral theorem, Function of Operators, The Block sphere, Density operators, no-cloning theorem

Unit II: Quantum-System

State of a quantum system – time evolution of a closed system, Quantum Superposition and Entanglement, Quantum Measurements, Quantum Gates and Circuits, and Bell's inequality and its implications, teleportation

Unit-III: Quantum Circuits

Quantum Circuits: Quantum Algorithms – Universal Quantum Gates – Quantum Circuit Model of Computation

Books/References/Online materials:

1. Quantum Computing, A gentle Introduction, Eleanor G. Rieffel, and Wolfgang H. Polak, MIT, Press (2014).

2. Chris Bernhardt, Quantum Computing for Everyone, The MIT Press, Cambridge, 2020.

3. Richard P. Feynman, "Simulating physics with computers (1982)," International Journal of Theoretical Physics, Vol. 21, Nos. 6/7

4.Copeland, B. J. (2000). The modern history of computinghttps://plato.stanford.edu/entries/computing-history/

5. Quantum Computation and Quantum Information, Michael A. Nielsen and Isaac L. Chuang, Cambridge University Press. (2014)

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