Minutes of an ordinary meeting of the Board of Studies of the Department of Applied Physics, Z.H. College of Engg. & Tech., A.M.U. Aligarh held on 06.10.2018 at 1:00 p.m. in the Staff Room of the Department.

The following members were present:

1. Prof. Ameer Azam
2. Dr. M. Mohsin Khan
3. Dr. Pushpendra Tripathi
4. Dr. Azra Parveen
5. Dr. S. Asad Ali
6. Dr. Zafrul Hasan
7. Dr. Hilal Ahmed
8. Dr. Mohd. Hashim
9. Prof. Shakeel Khan (In the chair)

Before taking up the agenda, Prof. Shakeel Khan, Chairman welcomed all the members of BOS present in the meeting.

1. Confirmed the minutes of the last BOS Ordinary meetings held on 26.05.2018 (Ordinary) and 11.08.2018 & 31.08.2018 (Special).
3. Allocated teaching load of B.E. (Evening) Courses Odd Semester and Even Semester (2018-19) [Appendix-II]
4. Approved Course Outcomes (COs) for the Course “Electrical Engineering Materials” (APS2050) [Appendix-III]
5. Appointed paper setters and examiners for the Ph.D. Coursework of the students admitted in the Session (2017-18).[Appendix-IV, Not for Circulation]

Any other item(s): 
(a) Change of topics of Ph.D. students

Topic change of Ph.D. students were considered and B.O.S. recommendations are as below
(I) Recommended the change in the Ph.D. topic of Mr. Moh. Nadeem, (Faculty No.15-PHD-APD-37, En. No. GD-4895 and date of admission 02.11.2015) working under supervision of Prof. Shakeel Khan and Co-supervision of Dr. Mohd. Wasi Khan

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<tr>
<th>Old Topic</th>
<th>New Topic</th>
<th>Remark</th>
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<tr>
<td>Microstructural, optical, electrical and magnetic properties of oxide nanomaterials.</td>
<td>Study of SHI irradiation induced modifications on the structural, optical, electrical and magnetic properties of pristine/doped BiFeO₃ multiferroic nanostructures.</td>
<td>Major Change</td>
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(II) Recommended the change in the Ph.D. topic of Ms. AsmaQaidHamoodAlmontaser, (Faculty No. 16-PHD-APD-36, En. No. GJ-7832 and date of admission 01.02.2017) working under supervision of Dr. AzraParveen

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(III) Recommended the change in the Ph.D. topic of Ms. Rumman Zaidi, (Faculty No. 15-PHD APD-36, En. No. GB-8010 and date of admission 02.11.2015) working under Prof. Ameer Azam

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<tr>
<th>Old Topic</th>
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<tr>
<td>Synthesis and characterization of graphene oxide and metal oxide nanocomposites for water purification.</td>
<td>Synthesis and characterization of binary metal oxide for water purification.</td>
<td>Minor Change</td>
</tr>
</tbody>
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(b) Cancellation of Ph.D. admission :
Mr. Md. Nur Hasan, a Ph.D. student (F.No. 17-PHD-APD-63 and En. No. GH1952) working under supervision of Dr. M. Mohisin Khan has requested for the cancellation of his Ph.D. Admission. B.O.S. considered his case and recommended the cancellation of Ph.D. Admission of Mr. Md. Nur Hasan.

Chairperson was authorized to make minor changes as and when required.

The meeting then came to an end with vote of thanks by the Chairperson.

(Prof. SHAKEEL KHAN)
CHAIRMAN
Appendix-III

Course Title: Electrical Engineering Materials

Course Number: APS2050
Credits: 3
Course Category: BS
Pre-requisite(s): -
Contact Hours: 2-1-0
Type of Course: Theory
Course Work:
- Home Assignments (15%)
- Mid-Semester Examination (1 hour) (25%)
- End-Semester Examination (2 hours) (60%)

Course Outcomes: Upon completion of the course, the student will be able to:

i. apply general math, science and engineering skills for the solution of electrical engineering problems.
ii. apply core concepts in Materials Science to acquire skills and techniques necessary for electrical engineering modern materials.
iii. to select electrical engineering materials for design of electrical equipments and perform experiments and able to analyze data.
iv. understand the professional and ethical responsibilities of a materials scientist and engineer.

UNIT 1: Conductivity of materials and Superconductivity:

UNIT 2: Dielectric Properties of Materials:
The Static Dielectric Constant, Polarization and Dielectric Constant, Polarization Mechanisms, Behavior of Dielectrics in Alternating Fields, Complex Dielectric Constant, Dielectric Losses, Loss Tangent (Tan Delta) and its Significance, Ferroelectric, Piezoelectric and Pyroelectric materials and their applications.

UNIT 3: Insulating Materials and their Applications:
Dielectric Strength of insulating Materials, Temperature Classification of Insulating Materials, Properties of Insulators (Electrical, Mechanical, Thermal and Chemical), Solid Insulating Materials used in Transmission Lines, Underground Cables and machine winding and capacitors, Enamels for windings, Properties and Testing of Transformer oil. Electronegative gases and vacuum as a Dielectric, factors effecting the characteristics of Insulating materials (Presence of Air spaces and Moisture), Applications of Nano-dielectric to high voltage insulation systems.

UNIT 4: Magnetic Properties of Materials:
Magnetization, Atomic Magnetic Moments, Classification of magnetic materials (Diamagnetic, Paramagnetic, Ferromagnetic, Ferrimagnetic and Antiferromagnetic), Ferromagnetic Domains, Magnetization Curve, Properties and Applications Soft and Hard Ferromagnetic Materials in Electrical Machines, Applications of Ferrimagnetic materials, Non Oriented and Grain Oriented Steels (CRGO steel), Magnetostriction and Magnetic resonance.

**Books:**
1. *R.K. Rajput*  
   Electrical engineering Materials, Laxmi Publications (P) Ltd.
2. *A.J.Dekker*  
   Electrical engineering Materials, Prentice Hall
3. *C.S.Indulkar and S. Thiruvengadam*  
   An Introduction to Electric Engineering Materials, S. Chand &Co. Ltd
4. *L. Solymar and d. Walsh*  
   Electrical Properties of Materials, Oxford University Press.2004