

Department of Electronics and Communication Engineering

JUIT Wajnaghat

A meeting of Board of Studies of the Department of Electronics and Communication Engineering was held on 13.10.2018 at 09:30 AM in the Board Room.

The following members were present

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|-----|-----------------------|---------------------------------------|
| 1. | Prof. M.J. Nigam | Chairman |
| 2. | Prof. Samir Dev Gupta | Dean A & R |
| 3. | Dr. Balwinder Singh | External Member |
| 4. | Dr. Rajiv Kumar | Member |
| 5. | Dr. Shruti Jain | Coordinator |
| 6. | Dr. Meenakshi Sood | Member |
| 7. | Dr. Neeru Sharma | Member |
| 8. | Dr. Shweta Pandit | Member |
| 9. | Dr. Vikas Baghel | Member |
| 10. | Prof Sudir Syal | HOD, BT & BI Department |
| 11. | Prof. P. B. Barman | HOD, PMS Department |
| 12. | Prof. Sunil Khah | Representative PMS Department |
| 13. | Dr. Hemraj Saini | Representative CSE Department |
| 14. | Dr. Neel Kanth | Representative Mathematics Department |
| 15. | Dr. Sakshi Khanna | Representative HSS Department |

Leave of absence

Leave of absence was granted to the following members by the Chairman Board of Studies:

1. Prof. D.T. Shahani (External Member)
2. Prof. C.C.Tripathi (External Member)

The Chairman welcomed all the members who were present for the meeting. The meeting thereafter deliberated on agenda items as had been approved by the Chairman.

Item No. 1 : Confirmation of minutes of Last Meeting of the Board of Studies held on 21.04.2018.

Confirmed

Item No. 2: Approval of finalized updated order of 160 credit schemes as already approved in last BoS for Academic Session 2018-19.

Prof. Barman has suggested a change in the mode of Engineering Physics II of 2nd semester. Instead of 3-1-0(L-T-P) scheme, he suggests that it should run as 3-0 (L-T) with an additional 1 credit Engineering Physics lab II. Board has left the decision on Academic Council.

After discussion with Dr. Neel Kanth regarding the 3rd semester Mathematics course, BoS suggested that Probability and Stochastic Processes should be renamed as Probability and Random Processes.

Rest updated 160 scheme was approved.

Item No. 3 : Approval of Syllabi of New courses of 3rd year for 160 credit scheme for B.Tech 2018-19.

Prof. Sunil Khah has suggested revising the contact hours of Electromagnetic Engineering due to redundancy with the Physics and Mathematics course. In view of this board has suggested some changes which were incorporated. The new syllabus of Electromagnetic Engineering is prepared as provided in **Appendix I**.

Rest syllabi of new courses of 3rd year for 160 credit scheme were approved.

Item No. 4 : Approval of List of Electives as per 160 credit curricula for B.Tech. ECE.

As recommended was approved.

Item No. 5 : Approval of Titles and Syllabi of New Electives for Academic Session 2018-19 for all batches of ECE (2015 onwards).

As recommended was approved.

Item No 6: Approval of List of MOOC courses introduced during the Academic Session 2018-19 for all batches of ECE.

As recommended was approved

Item No.7: Course Outcomes (COs) - Program Outcomes (POs) - Program Specific Outcomes (PSOs) attainments for the Odd Semester 2017 and Even Semester 2018.

Prof. Samir DevGupta was of opinion that the PEOs should also be mapped to POs. It was also mentioned that exit feedback of last year could be used for this mapping.

As recommended was approved

Item No 8: Ph.D. course and its syllabus.

It was suggested by Prof. Sunil Khah, that there must be flexibility in the assessment scheme of PhD course. Some members were of opinion that it could be done in terms of the presentation and writing research papers. Finally, Board has given flexibility to the Supervisors for internal assessment of Scholar.

Syllabus was approved.

Item No. 9: Any other item with the permission of the Chair.

Chairman has suggested reducing the intake seats of B-Tech ECE from 90 to 60.

The meeting concluded at 10:45hrs with a vote of thanks by **Prof. M. J. Nigam**, Chairman Board of Studies.

Absent
(Prof. D.T. Shahani)

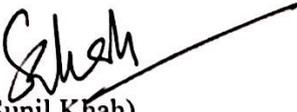
Absent
(Prof. C.C. Tripathi)

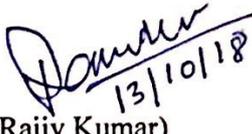

(Dr. Balwinder Singh)


(Prof. M. J. Nigam)

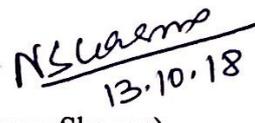

(Prof. Samir DevGupta)


(Prof. P.B. Barman)

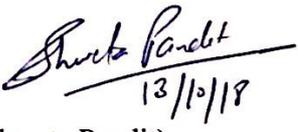

(Prof. Sunil Khah)

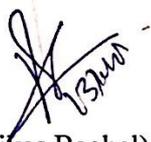

(Dr. Rajiv Kumar)

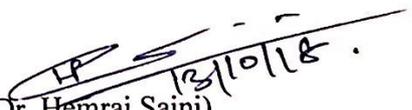

(Dr. Shruti Jain)

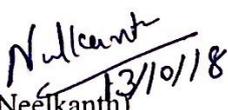

(Dr. Neeru Sharma)

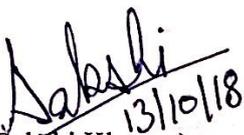

(Dr. Meenakshi Sood)


(Dr. Shweta Pandit)


(Dr. Vikas Baghel)


(Dr. Hemraj Saini)


(Dr. Neelkanth)


(Dr. Sakshi Khanna)


(Prof. Sudhir Syal)

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY WAKNAGHAT, SOLAN (H.P.)

NAME OF DEPARTMENT: **Electronics and Communication Engineering**

1. Subject Code: **18B11EC513**

Course Title: **ELECTROMAGNETIC
ENGINEERING
(Core Course)**

2. Contact Hours: **L: 3** **T: 1** **P: 0**

3. Credits:

4

4. Semester

5th Semester, B.Tech. (ECE)

5. Course Objectives

To lay the foundations of electromagnetic engineering and its applications in modern communication systems

6. Course Outcomes (CO)

Students will be able to

Course Outcomes (18B11EC513 : ELECTROMAGNETIC ENGINEERING)	Level of Attainment
CO-1 Apply vector calculus to static electric-magnetic fields in different engineering situations.	Familiarity
CO-2 Analyze Maxwell's equation in different forms (differential and integral) and apply them to diverse engineering problems.	Familiarity
CO-3 Examine the phenomena of wave propagation in different media and its interfaces and in applications of microwave engineering.	Usage
CO-4 Analyze the nature of electromagnetic wave propagation in guided medium which are used in microwave applications.	Assessment
CO-5 Analyze the wave propagation on two wire transmission lines and to study the applications of transmission lines in real time applications	Assessment

7. Course Contents

S. No.	Contents	Contact Hours
1.	Review of scalar and vector fields Electrostatic and Magneto static Fields.	4
2.	Inconsistency of Amperes law, Continuity equation, Displacement current, Maxwell's equations, Boundary conditions.	4
3.	Wave propagation in free space, Conductors and dielectrics, Polarization, Plane wave propagation in conducting and non conducting media, Phasor notation, Phase velocity, Group velocity; Reflection at the surface of the conductive medium, Surface Impedance, Depth of penetration. Transmission line analogy.	11
4.	Poynting theorem, Poynting Vectors and power loss in a plane conductor.	4
5.	Transmission line equations, characteristic impedance, open and short circuited lines, standing wave and reflection losses. Impedance matching, Smith Chart, Simple and double stub matching.	6
6.	Rectangular and circular wave guides- Modes in rectangular and cylindrical coordinates, characteristics, power transmission and losses, excitation of modes. Microwave coaxial connectors. Rectangular, Circular and semi-circular cavity resonators, Q factor.	8
7.	Scalar and vector potentials. Radiation from a current filament, half-wave dipole and small loop antennas. Antenna characteristics, radiation pattern, radiation intensity, directivity and power gain. Antenna arrays, effective area and Friss equation.	5
	Total	42

8. Evaluation Scheme

Test 1 : 15 marks (1 Hour)

Test 2 : 25 marks (1.5 Hours)

Test 3 : 35 marks (2 Hours)

Internal Assessment: 25 marks

- Class performance, Tutorials & Assignments : 10 marks
- Quizzes : 10 marks
- Attendance : 5 marks

Total : 100 marks

9. Text Books

S.No.	Name of Books/Authors	Year of Publication
1.	Hayt Jr, William H. John A. Buck, "Engineering Electromagnetic". 8 th Edition, Tata McGraw-Hill.	2013
2.	Pozar, David M. "Microwave engineering" 4 th Edition, John Wiley & Sons.	2011
3	Ballanis, Constantine A. "Antenna theory analysis and design", 3 rd John Willey and Son's Inc., New York.	2005

10. Reference Books

S.No	Name of Books/Authors	Year of Publication
1.	Sunil Bhooshan, "Fundamentals of Engineering Electromagnetic", 1 st Edition, Oxford University press.	2012
2.	Cheng, David Keun. "Field and wave electromagnetic", 2 nd Edition Pearson Education India.	2004
3.	Elliot, Robert S. "Antenna theory and design". Revised Edition, John Wiley & Sons.	2003

11. Web Resources

1	NPTEL ONLINE COURSES Electromagnetic fields	https://nptel.ac.in/courses/117103065/
2	MITOPEN COURSEWARE Electromagnetic Fields and Energy	https://ocw.mit.edu/resources/res-6-001-electromagnetic-fields-and-energy-spring-2008/ Hermann A. Haus James R. Melcher Prof. Markus Zahn Manuel L. Silva