AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

27th Km. Stone, Delhi-Hapur Bypass Road, P.O. Adhyatmik Nagar, Ghaziabad -201009

AKGEC/IQAC/2022-23/02

21st September 2022

INTERNAL QUALITY ASSURANCE CELL (IQAC)MOMs

The IQAC meeting for the session 2022-23 (Odd Sem) was held on 12th September 2022. The following members of the IQAC were present during the meeting:

1. Dr. P.K. Chopra, Director (Chairman, IQAC)
2. Prof. Neelesh Kumar Gupta, ECE Department
3. Prof. Anil Rai, EN Department
4. Prof. Devendra Singh, ME Department
5. Prof. Inderjeet Kaur, CSE Department
6. Asso. Prof. MeenakshiAwasthi, ECE Department
7. Asso. Prof. Anupama Sharma, IT Department
8. Asst. Prof. Dushyant Singh Chauhan, ECE Department
9. Asst. Prof. Richa, ECE Department
10. Asst. Prof. Abhishek Tiwari, ECE Department
11. Mr. Rajeev Mishra, Manager Special Projects
12. Mr. Pradeep Bhardwaj, Manager Placements

Agenda Points

(a) To present the Action Taken Report (ATR) of the IQAC Meeting held on 07 March 2022.

(b) To plan research activities, organize International Conferences and FDPs for the development of faculty members and students and for promoting research at the College Level.

(c) To consider and the review the different ongoing practices and also to suggest improvements required to be done for enhancing the employability skill enrichment and quality of students' projects along with students' participation in various National Level activities such as SIH-2022.

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(d) Monitoring of offline classes for the session 2022-23 (Odd Sem) and put up suggestions for further improvements of Teaching-Learning practices.

(e) Review of the ongoing Outcome Based Teaching, Learning, and Evaluation methodologies.

(f) To review and analyze the status of admission in B.Tech. 1st year for the academic year 2021-22.

(g) To consider proposals and suggestions regarding field projects/internships.

(h) To review the status of on-campus placements.

(i) To review and increase the number of CCTV cameras installed in the campus for surveillance and security purposes.

(j) Planning of internal academic audit of the teaching-learning process.

Discussion Points/ Minutes of the Meeting

Agenda Point-a

The chairman briefly discussed the action taken on the agenda points of meeting held on 7th March 2022 and recommended these points for further discussion in the meeting.

Agenda Point-b

A proper plan was presented and IQAC Members gave suggestions on the same. IQAC suggested that, every year at least 2 research papers should be published in UGC CARE/SCOPUS/SCI indexed journals by each faculty member and the institute should also organize international conferences (Sponsored by IEEE, Springer, Elsevier and other reputed organizations) & encourage students also to work on research paper publication. IQAC members expressed their satisfaction on reports of FDPs organized and FDPs attended by faculty members.

Agenda Point-c

To consider suggested improvements for different practices to enhance employability, skill enrichment and quality of projects made by B. Tech students along with participation of students in various activities such as SIH-2022 through Idea Lab of the college.

Agenda Point-d

The department should provide good quality content (PPTs, PDFs of courses, Videos) to the students under the supervision of senior faculty members of the monitoring committee. The Academic Motoring Committee should check the quality as per plan and stan[illegible] IQAC members accepted all the received reviews for adopting technical teaching practice

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for further improvements. Modern teaching ICT tools such as smart boards are to be incorporated while taking offline classes along with chalk boards.

Agenda Point-e

Members of IQAC expressed their satisfaction on the already ongoing outcome-based teaching learning and evaluation processes and appreciated for proper implementation of the outcome-based education system in the college.

Agenda Point- f

IQAC expressed satisfaction on the status of admissions in B.Tech 1st year for the academic year 2021-22 and it was suggested that the admission cell is required to be more focused for quality admissions and increasing the admissions in traditional core branches.

Agenda Point- g

IQAC members accepted proposals and suggestions regarding the on field projects/internships by the students and instructed all HoDs for the same and asked them to maintain quality in this regard.

Agenda Point-h

Members of the IQAC discussed their thoughts/reviews regarding placements and made recommendations to the Training and Placement Cell for further improving the on-campus placements with better package.

Agenda Point-i

The team discussed the importance of CCTVs installed in the college for surveillance & security purposes and expressed their satisfaction with the same.

Agenda Point-j

The team for the Internal Academic Audit of the Teaching-Learning process will be framed. The schedule of the next IQAC audit will be as follows:

2022- 23 (Odd Sem)

S. No.	Audit Duration	Date
1.	Sessional Test Exam	As per Academic Calendar
2.	Pre-University Test	As per Academic Calendar

Following guidelines are to be strictly followed in the maintenance of both theory, practical attendance record and course file by each faculty member:

(a) Properly formulated CO statements as per Bloom's Taxonomy for both Theory subjects.

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(b) Mapping of COs with POs and PSOs as per NBA guidelines (DSP/NBA/2022/01 & DSP/NBA/2022/02) shared by the DSP.

(c) Question paper of internal assessments (STs/PUT) prepared as per NBA guidelines (DSP/NBA/2022/03) with appropriate weightage given to questions from all possible Bloom's levels.

(d) Identification of theory topics beyond the syllabus and their inclusion in Lecture-Wise Schedule (LWS). Mapping of the additional topics with relevant COs and POs/PSOs is also to be documented in LWS.

(e) Additionally, the details of the Lab(s) taken by respective faculty to be appended after the theory subject details in the same course file. The following details regarding the Lab subjects to be documented:

(i) List of Experiments as per AKTU Syllabus.

(ii) Identification of experiments beyond the syllabus and their relevance to COs and POs/PSOs.

(iii) Updated COs after including additional experiments.

(iv) Updated CO-PO/PSO mapping of the respective Lab Course.

(f) Ensuring filling attendance on AKTU AMS/Edu Marshal portal.

(g) Only P (Present), A (Absent) and A_c (Present with college duty) should be marked in the attendance register, no dot should be put & overwriting is to be avoided.

(h) Topper, Bottomer, Hostlers, Discipline and Not registered cases to be marked.

(i) Ensuring all entries on attendance registers (Theory and Lab).

(j) All documents should be arranged as per the order of format with their proper strings.

(k) Lecture wise schedule should be updated upto ST/PUT exam and signed by HoD.

Dr. P. K. Chopra
Director

Copy to:

i. All HoDs, faculty members

ii. Industry members

iii. Alumni

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27th Km Milestone, Delhi - Hapur Bypass Road, P.O. Adhyatmik Nagar, Ghaziabad, Uttar Pradesh 201009

AKGEC/IQAC/2022-23/03

29 December 2022

Action Taken Report (IQAC Audit)2022-23 (Odd Semester)

As per the planning and instructions of IQAC members, the following actions have been taken for the session 2022-23 (Odd Sem):

1. To confirm the status and implementation of MoM of the IQAC meeting held on 12 September, 2022 in Director's Conference Hall, AKGEC, Ghaziabad.
2. To plan research activities and organize International Conferences and FDPs for the development of faculty members and students.
3. A well-made plan to promote research is being executed in all the departments and HoDs are motivating their faculty members for publishing at least 2 research papers having indexing in UGC CARE/SCOPUS/SCI. EN department is going to organize an International Conference on "Advancements and Key Challenges in Green Energy and Computing (AKGEC 2023)" which will be held on 24 & 25 February 2023 in the college. The remaining departments are also trying to organize international conferences (Sponsored by IEEE, Springer, Elsevier etc.) & also encouraging students to work on research papers based upon their projects. Faculty members of each department are also motivated for attending FDPs organized by reputed institutes.
4. Each department is guiding their students for making quality projects at the B. Tech level and also encouraging students for participation in various National Level activities.
5. As per instructions, Academic Monitoring Committee has been formed for UG and PG courses. They are working on time to time as per the academic calendar. Faculty members are also adopting the suggestions given by IQAC Members in last IQAC meeting regarding teaching-learning process.
6. Monitoring committee checked the e-content (PPTs, Lecture notes, Videos etc.) uploaded on Google Classroom by the faculty members for students at department level along with recording of video lectures at AKGEC Skill Studio.

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7. HoD of each department has been instructed to ensure that the outcome-based education processes are being followed by the FMs in their teaching,-learning, process and adopting the blooms Taxonomy along with CO, PO for Theory and Lab subjects. Faculty members are also including the same in their theory and Lab course files.
8. Each department is planning to raise its quality levels and upgradation of emerging technologies among the students so that quality students will take admission in the next academic year.
9. Departments are also working on proposals accepted by IQAC members regarding field projects/internships of students while ensuring quality too.
10. T & P department is contacting more reputed multi-national companies and focusing on core companies (especially for EN, ME & CE students placements).
11. Our college is working towards the installation of more CCTV in the institute along with their proper maintenance for security purposes in the campus.
12. Planning of internal academic audit of the teaching-learning process.

The team for IQAC audit on the teaching-learning process was formed. The schedule is from 14th to 16th Dec, 2022 as follows:

Schedule of Audit held in various departments during the academic year 2022-23 (Odd Sem).

S.NO.	NAME of AUDITOR	DEPARTMENT (AUDITOR)	DEPARTMENT (TO BE AUDITED)	DATE
1.	Dr. Vani Bhargava Dr. Anupama Sharma Mr. Abhishek Tiwari	EN IT ECE	AS&H	14th Dec 2022
2.	Mr. Dushyant Singh Chauhan Ms. InduVerma	ECE MCA	TIFAC	14th Dec 2022
3.	Dr. Seema Garg Mr. VivekPansaari	ECE ME	MCA	14th Dec 2022
4.	Prof. Neelesh Kumar Gupta Mr. Priyank Shrivastava	ECE CE	EN	15th Dec 2022
5.	Mr. Abhishek Tiwari Mr. Jaykant P. Singh	ECE CS	CE	15th Dec 2022
6.	Dr. Vani Bhargava Dr. Anupama Sharma Mr. Gajesh	IT EN ME	CS	15th Dec 2022

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7.	Mr. Lucknesh Mr. Atri Tyagi Ms. Aparna Saxena	IT CE MCA	ECE	16th Dec 2022
8.	Mr. Dushyant Singh Chauhan Dr. Neeti Maheshwari	ECE AS & H	ME	16th Dec 2022
9.	Prof. Neelesh Kumar Gupta Dr. Akash Kumar Mr. Pradeep Gupta	ECE AS& H CS	IT	16th Dec 2022

The audits were held in various departments during the academic year 2022-23 (Odd Sem) as per schedule.

Dr. P. K. Chopra

Director

Attachments:

i. Detailed report of Audit.

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AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

27th Km. Stone, Delhi-Meerut Expressway, Ghaziabad -201009

24 December, 2022

To

The Director General
AKGEC, Ghaziabad, U.P.

SUBJECT: INTERNAL ACADEMIC AUDIT REPORT FOR 2022-23 (ODD SEM)

1. An internal academic audit of all Engineering & MCA departments was conducted from 14th to 16th December 2022.

2. Theory and Practical attendance registers along with course files were thoroughly checked for the duration 23rd August to 8th December 2022.

3. Uploading of attendance on AKTU AMS portal and Edumarshal portal was also verified for each department.

4. Two/three auditors from each department visited various departments for the audit.

5. General Observations which are found in various departments are as follows:

   a) Course Correlation chart was missing in all the course files of FMs teaching ME Department.
   b) Methodology for TA assessment was not available in the course file of FMs in, ME, EN, IT, CE, & TIFAC departments.
   c) Lab course details was not available in most of course files of ME department.
   d) Date on timetable in course file was not mentioned by few FMs in CSE & AS&H departments.
   e) Student signatures were missing in attendance registers of some FMs in EN, ME, ECE & IT departments.
   f) Few entries were missing in FMs course file & attendance registers of CSE & EN departments.

6. Detailed report submitted by auditors for each department is attached.

③ For other observations on individual faculty, please get an explanation from faculty, issue written warning and submit both to me through DSP RL

① - Pl. get points (a), (b), (c) taken care of. Was it not being done earlier also or has stopped now. Surprising to see that monitoring these and auditors have to point out. Not good for HODs

② - Pl. do another audit on these points and p.u. report after a week. RL 26/12

Dr. P. K. Chopra
Dean Special Projects

Director
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Ajay Kumar Garg Engineering College, Ghaziabad

Internal Academic Audit (2022-23 Odd Sem)

Department Audited: APPLIED SCIENCES

Date: 14/12/2022

Auditor's Name:
Dr. Anupama Sharma,
Dr. Vani Bhargava,
Mr. Abhishek Tiwari

S.No.	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
1	Dr BB. VERMA	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
2	Dr SHIWANI SINGHAL	BAS 102, BAS 104	BAS 152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
3	Dr MANOJ KR GOYAL	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
4	Dr SANDEEP GUPTA	BAS 102, BAS 104	BAS 152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
5	Dr. BANDANA SHARMA	BAS 101	BAS 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
6	Dr. MEENAKSHI SINHA	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
7	Dr NITYA SHARMA	BAS 102, BAS 104	BAS 152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
8	Dr NITI MAHESHWARI	BAS 102, BAS 104	BAS 152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
9	Dr TARUN JEET SINGH	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA			
10	Dr RUCHIRA GOEL	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA			

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S.No.	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
11	Mr. VIKAS RATHI	BAS 101	BAS 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
12	Dr. AKASH KUMAR	KHU 701, KNC 501		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
13	Mr. VISHAL GUPTA	KHU 701, KNC 501		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
14	Dr SHWETA PRAKASH	BAS 101	BAS 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
15	Dr PARUL VERMA	BAS 102, BAS 104	BAS 152	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
16	Dr SWEETY AGGARWAL	BAS 101	BAS 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
17	Mr. VIKAS ROSHAN	KHU 701, KNC 501		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
18	Dr VIMLESH MISHRA	BAS 101	BAS 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
19	Dr. MONIKA AGARWAL	KAS 301, BAS 105	BAS 154	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
20	Dr. NEETU SHARMA	KAS 301, BAS 105	BAS 154	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
21	Dr VIRENDRA KUMAR	BAS 101	BAS 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
22	Dr. ANAND TYAGI	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA			
23	Dr. SANJAY SHARMA	BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA			

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S.No.	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
24	Dr .MOHIT KUMAR TIWARI	KAS 301, BAS 105	BAS 154	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
25	DR.SMRATI TRIPATHI	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
26	DR.EKTA PANDEY	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
27	DR.RAHUL PANDEY	KAS 302, BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
28	DR.MADHULIKA DAS	KAS 301, BAS 105	BAS 154	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
29	DR.KANIKA	BAS 103		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK

General Obsrvation: 1. Faculty signature and date on time table are missing on some of the faculty members time table
2. Course Co-relationn Chart of ME department wa not attached in the course files

Auditor's Signature:

1.....

2.....

3.....

22/12/22

M R

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Ajay Kumar Garg Engineering College, Ghaziabad
Internal Academic Audit (2022-23 Odd Sem)
Department Audited: CE

S.No	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
1	Rakesh Srivastava	KCE 051		Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	NA	
2	Anchal Negi	KCE 503, KCE 054	KCE 752, KCE 552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
3	Animesh Rai	BAS-104		Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	NA	
4	Anubha Gupta	KCE 074, KCE 302	KCE 554, KCE 551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
5	Ashish Vishwakarma	KCE 078, KCE 055	KCE 751,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
6	Atri Tyagi	KCE 074, KCE 502	KCE 352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
7	KSHAMA SHUKLA	KCE 301, KCE 057	KCE 351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
8	Nikita Jaiswal	KHU 702, KCE 303	KCE 353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
9	Prashant Agarwal	KHU 702, KCE 078	KCE 752, KCE 753, KCE 751,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
10	Priyank Srivastava	KCE 501, KNC 501	KCE-752, KCE 553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

General Observations:

1. Date on time table is missing.
2. Assesment methods for TA is missing on LWS.

Auditor1 ...Abhishek Tiwari...

Auditor2 ...Jay Kant Pratap Singh ( )

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Internal Academic Audit (2022-23 Odd Sem)
Department Audited: CSE

S.No	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
1	SUNITA YADAV	KCS-071		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
2	INDERJEET KAUR	KCS- 058	KCS-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
3	RAJESH PRASAD	MTCS-351,KCS503	KCS- 553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
4	SACHIN KUMAR	KCS301	KCS 351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
5	SHASHANK SAHU	KCS- 052	KCS- 554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
6	PRATIMA SINGH	KDS-501	KCS- 553,KDS-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
7	SONAM GUPTA	KCS- 052	KCS- 554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
8	AKHILESH VERMA	KCS- 302	KCS- 352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
9	AMRITA BHATNAGAR	KCS- 302, KNC-302	KCS- 353, KCS-352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
10	ANKITA RANI	KCS-058	KCS551,KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
11	ANUJ DWIVEDI	KCS-058	KCE-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
12	ANURADHA	KCS-071,KAI-501	KCS-751, KAI551	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	OK
13	ANURAG GUPTA	KCS- 302, KNC- 302	KCS- 352, KCS- 552, KCS-351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
14	ASHISH	KCS- 052	KCS- 354, KCS-551, KCS-552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
15	ASHISH DIXIT	KCS-301	KCS- 351, KCS-352, KCS-552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Present marks with black ink,viva marks entered with pencil
16	AYUSHI GUPTA	BCS-101	BCS-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Target attendance not filled in LWS
17	BIHARI NANDAN PANDEY	KOE-076, KCS-502		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
18	CHHAYA YADAV	KCS-303,	KCS- 353, KCS-351,KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
19	DIVYA JOSEPH	KCS- 301	KCS- 351, KCS-353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Grades for some praticals not marked, Extra topics in LWS
20	HARNIT SAINI	KCS- 303	KCS- 353, KCS- 553, KCS-354	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
21	JAISHREE JAIN	KCS- 713, MTCS- 013	KCS-753, KCS-752, KCS-751(A), KCS-354	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
22	JAY KANT YADAV	KCS- 502	KCS- 552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
23	JULI YADAV	KCS-502	KCS-552, KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
24	KAMNA SINGH	KCS-302, KNC-301	KCS- 352, KCS-354	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK

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	LAKSHITA SEJWAL	KCS- 303	KCS- 353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
26	MANISH KUMAR	KOE- 073, KCS- 052	KCS- 554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
27	MANOJ KUMAR	KCS-501	KCS-752, KCS-551, KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
28	MANOJ KUMAR	BCS-101	BCS-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
29	MEGHA GUPTA	KCS-303	KCS-752,KCS-353,KCS-354	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
30	NEERAJ SAGAR	KCS- 503, MTCS-101	KCS-354,KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
31	NEERAJA ARORA	KCS- 503	KCS-352, KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
32	NISHU BANSAL	KCS- 501	KCS-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
33	PANKAJ SHARMA	KCS- 503	KCS- 553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
34	PRADEEP GUPTA	KCS- 058	KCS- 552, KCS- 554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
35	PREETI GUPTA	KCS- 503, Mics-102	KCS- 351, KCS- 352, KCS-552,KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
36	PRONAB ADHIKARI	KCS-501	KCS-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
37	RAGHURAJ SINGH	KCS- 713, KCS-055	KCS- 752,KCS-753,KDS-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
38	REKHA BAGHEL	KCS-052	KCS-551, KCS-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
39	SAMENDER SINGH	KCS-502	KCS-552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
40	SANDEEP YADAV	KCS-501	KCS-552, KCS-553, KCS-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
41	SANTOSH UPADHYAY	KCS-713	KCS-753	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
42	SHARMA JI	KCS-301, KCS-301	KCS-351,KCS-351,KCS-353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
43	SHARVAN KUMAR	BCS-151, BCS-101		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
44	SHIVA TYAGI	KNC-301	KCS-351, KCS-353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
45	SONALI GAHLOT	KNC-301,KNC-301, KCS-501	KCS-354, KCS-354, KCS-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
46	SWATI TOMAR	KCS-301, KCS-301	KCS-351, KCS-351, KCS-301, KCS-354, KAI-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
47	UPASANA MISHRA	KVE-301,BAS-101		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	OK
48	VAISHALI RASTOGI	KCS-302, KNC-301	KCS-351, KCS-352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
49	VARUN KUMAR	KCS-303	KCS-353	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	In ST, some students signature are missing
50	VISHAL CHAUDHARY	KNC-301, KCS-503	KCS-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
51	VISHAL JAYASWAL	KCS-302, KNC-301	KCS-352, KCS-352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
52	YOGENDARA PRAJAPTI	KNC-302, KCS-302	KCS-352, KCS-353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		

General Observations:

1. Date on Time -Table in course file is missing by most of the faculty members.
2. Assigment submission date is missing by most of the faculty members.

Auditor1 .....
Auditor2 .....
Auditor3 .....

Dr. Varsha Bhupendra
(Dr. Anupama Sharma)

Director
Ajay Kumar Garg Engg. College
Ghaziabad

MR

Ajay Kumar Garg Engineering College, Ghaziabad

Internal Academic Audit (2022-23 Odd Sem)

Department Audited: ECE

Auditor's Name:

1.Mr. Lucknesh

2. Mr.Atri Tyagi

3. Ms. Arpana Saxena

Date: - 16.12.2022

					Theory Course Details						Lab Course Details				
S.NO	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with cos& POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated cos with POs& PSOs	Updation of Attendance Register (Lab)	Rem
1	NEELESH GUPTA	KEC-503		Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	
2	MEENAKSHI AWASTHI	KEC-076	KEC-351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
3	SEEMA GARG	BEC- 101	BEC-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
4	ABHIJEET UPADHYA	KEC-503		Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	OK
5	ABHISHEK TIWARI	KIC071,	KEC- 351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
		KVE-301	KEE-351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
6	AMIT GARG	KEC-503	KEC- 553, KEC-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
7	AMITA ASTHANA	KEC- 302, BEC- 101, BEC-151	KEC- 353, KEC-553	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	1. Monthy attendace of October and November were missing, 2. Students signature in ST-1 column were
8	ANUGOEL	KEC-501	KEC-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
9	DUSHYANT CHAUHAN	BEC- 101	BEC-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			

Director
Ajay Kumar Garg Engg. College
Ghaziabad

S.NO	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with cos& POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated cos with POs& PSOs	Updation of Attendance Register (Lab)	Remark (if any)
10	GAGANDEEP SINGH	KOE- 076, KOE076, KOE- 076 G1, KEC-053	KIC 751A, KIC751A, KIC-751 A1, KEG- 351, KEE-351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
11	HIMANSHU NAGPAL	KHU- 702, KEC-058	KEC- 751D, KEC-352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
12	JITENDER CHHABRA	KEC-302	KEC-354	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
13	KARUNESH	KIC075	KEC-552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
14	NARESH KUMAR	KEC-058	KEC- 752, KEC-552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
15	NAVEEN SAINI	KEC- 076, KEE-301	KIC752, KEC- 352, KEC- 554,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
16	NEERAJ SHARMA	KHU- 702, KEC-074	KEC- 752, KEC-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
17	NEHAGARG	BEC- 101, BEC-151	KEC-552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
18	NILUFAR YASMIN	KEE-058	KEC- 352, KME-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
19	NIMISH SRIVASTAVA	KOE- 039, KOE039, KEC-058	KEC753, KEC- 753, KEC-552	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	1. Students signature in ST were missing 2.Too much whitener in lab registers
20	OM GUPTA	KEC-501	KEC- 753, KEC- 354, KEC- 352, KEC-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
21	POOJA MISHRA	KEC-301	KEC- 351, KEC-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
22	PRIYANKA SHARMA	BEC- 151, BEC-101	KEC-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
23	RAGHVENDRA PRATAP SINGH	KEC- 301, KVE-301		Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-			

Director
Ajay Kumar Garg Engg. College
Ghaziabad

S.NO	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with cos& POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated cos with POs& PSOs	Updation of Attendance Register (Lab)	Remark (if any)
24	RAJNI PRASHAR	KOE- 039, KOE039, KOE 039, KEC-053	KEC- 352, KEC-351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
25	RICHA	KEC-074	KEC- 7510	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
26	RITISH	KEC-074	KIC753, KEC- 753, KEC- 751D,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
27	SULEKHA SAXENA	KEC- 302, BEC- 151, BEC-101	KIC 751A, KIC-751 A2, KIC751A, KEC- 354, KEC-352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
28	TUKUR GUPTA	KHU- 702, KVE-301	KEC- 354, KEC- 352, KEC-552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
29	ALOK KUMAR	KEC-301,	KEC-351,KEC-354,KEC-351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK
30	UMASHARMA	KHU702, KEC-501	KEC-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	OK

General Observation

Auditor's Name:

1.Mr. Lucknesh

2. Mr.Atri Tyagi

Director
Ajay Kumar Garg Engg. College
Ghaziabad
20/12/2
MR

Ajay Kumar Garg Engineering College, Ghaziabad

Internal Academic Audit (2022-23 Odd Sem)

Department Audited: EN
Auditor's Name:
1.Dr. Neelesh Gupta
2. Mr.Priyank Srivastava

Date: - 16.12.2022

S.No.	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
1	Dr. Hemant Ahuja	KEE 503		YES	YES	YES	YES	YES	YES	YES	NA	NA	NA	NA	
2	Dr. Anil Kumar Rai	KEC 303	KEC 353	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
3	Dr. Sarika Kalra	KEE 075	KEE 553	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	NO	1. Faculty sig. are missing and some strings are missing in attendance register. 2. In Lab register some entry are missing.
4	Dr. Vani Bhargava	KEE 503	KEE 553	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
		KOE 033	KEN 543	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
5	Dr. Dibya Bharti	KEC 303	KEC 353	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
		KOE 033		YES	YES	YES	YES	YES	YES	YES	NA	NA	NA	NA	
6	Mr. Parveen Kumar	KOE 074		YES	YES	YES	YES	YES	YES	YES	NA	NA	NA	NA	
		KOE 033	KEC 353	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
7	Mr. Deepak Narang	KEE 502	KEE 552	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
		KOE 034		YES	YES	YES	YES	YES	YES	YES	NA	NA	NA	NA	
8	Ms. Nupur Mittal	KEE 502	KEE 552	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	1. In KEE-552 attendance is not updated and some entries are missing
		KEE 303		YES	YES	YES	YES	YES	YES	YES	NA	NA	NA	NA	
9	Mr. Shani Kumar Pandey	KEE 501	KEE 551	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
		KEC 303	KEC 353	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
10	Mr. Harsh Mohan Sharma	KEN 070		YES	YES	YES	YES	YES	YES	YES	NA	NA	NA	NA	
11	Mr. Neeraj Gupta	KEE 302	KEE 352	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
		KOE 033		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
12	Mr. Ravinder Kumar	BEE 101S1	BEE 151 S1	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
		BEE 101 S9	BEE 151 S9	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
13	Mr. Ritesh Sharma	KOE 076		YES	YES	YES	YES	YES	YES	YES	NA	NA			
		BEE 101 S3	BEE 151 S3	YES	YES	YES	YES	YES	YES	YES	YES	YES	Y		
		BEE 101 S8	BEE 151 S8	YES	YES	YES	YES	YES	YES	YES	YES	YES	Y		
14	Dr. J.G. Yadav	BEE 101 S2	BEE 151 S2	YES	YES	YES	YES	YES	YES	YES	YES	YES	Y		
		BEE 101 S10	BEE 151 S10	YES	YES	YES	YES	YES	YES	YES	YES	YES	Y		
15	Ms. Navjyoti Sharma	BEE 101 S4	BEE 151 S4	YES	YES	YES	YES	YES	YES	YES	YES	YES	Y		
		BEE 101 S6	BEE 151 S6	YES	YES	YES	YES	YES	YES	YES	YES	YES	Y		

Director
Ajay Kumar Garg Engg. College
Ghaziabad

16	Ms. Nidhi Singh	BEE 101 S7	BEE 151 S5	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
		BEE 101 S5	BEE 151 S7	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	

General Observation

1 **Methodology for T.A assessment is not available in course files**
2 **Absentee sheets and attendance sheet of debarred students are not available in few course files**

Auditor's Name 1 : Dr. Neelesh Gupta Nupta 19/12/22

Auditor's Name 2 : Mr.Priyank Srivastava Priyank

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Ajay Kumar Garg Engineering College, Ghaziabad

Internal Academic Audit (2022-23 Odd Sem)

Department Audited: IT

Date:- 16.12.2022

S. No	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
1	ANU CHAUDHARY	KCS- 501		Yes	Yes	Yes	Yes	yes	Yes	Yes	NA	NA	NA	NA	
2	SHERADHA JAUHARI	BCS- 101	BCS- 151	Yes	Yes	Yes	Yes	yes	Yes	Yes	Yes	Yes	Yes	Yes	
3	AVDHESH GUPTA	KCS- 058, KCS- 501	KCS- 551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
4	ADITYA SINGH	BCS- 101	BCS- 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
5	ACHINTYA PANDEY	KCS- 054, KCS- 503	KIT- 752, KCS- 553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
6	AKANKSHA SHUKLA	KIT-501, KCS- 058	KCS- 354, KIT-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
7	ANMOL JAIN	KCS- 302, KIT-501	KCS- 352, KIT-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
8	ANUPAMA SHARMA	KVE- 301, KCS- 501	KCS- 551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
9	BIRENDRA KUMAR	KCS- 503	KCS- 553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
10	CHELSI SEN	KNC- 301		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
11	GOPAL BABU	KOE- 076, KOE 076		Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
12	KAMINI TANWAR	BCS- 101	BCS- 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
13	KOMALRANI	KCS- 303, KCS- 058	KCS- 353, KCS- 554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
14	LUCKNESH KUMAR	KCS- 501	KCS- 551, KCS- 551 1A, KCS- 551 1B, KCS- 551 1C, KCS-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
15	MADHUP AGRAWAL	KME- 056	KCS- 554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
16	MILI SRIVASTAVA	KCS- 713	KIT- 753, KCS- 554, KME- 552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
17	MRIGNAINY KANSAL	KCS- 074	KIT- 753, KIT- 751A,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
18	MUKESH SINGH	KOE- 073, KCS- 501	KCS- 354, KCS- 551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
19	NANDITA GOYAL	KCS- 303, KIT-501	KCS- 353, KIT-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
20	NIDHI GUPTA	KCS- 301, KCS- 058	KCS- 351, KCS- 354	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
21	PANCHAM SINGH	KCS- 074	KIT- 751A, KIT-753	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
22	PANKAJ SINGH	KCS- 302	KCS- 352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
23	PARNEET	KME- 074, KCS- 713	KIT-753	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			

Director
Ajay Kumar Garg Engg. College
Ghaziabad

	CHOUDHARY	KNC- 301, KCS- 301	KCS- 351	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	1. Register are incomplete. 2. String on Syllabus & Absentee details ST1 are missing.
25	PUNEET GOYAL	KCS- 301	KCS- 351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
26	RASHMI SHARMA	KHU- 702, KCS- 058	KCS- 354	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
27	RUCHI GUPTA	KHU- 702	KIT-753	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
28	SACHIN TYAGI	KNC- 301, KCS- 503	KIT- 752, KCS- 553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
29	SANTOSH MISHRA	KIT-501	KIT-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
30	SARVACHAN VERMA	KCS- 054	KME- 552	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
31	SHIKHA AGARWAL	KCS- 713, KCS- 301	KIT- 752, KCS- 351	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
32	SHILPI GUPTA	KCS- 074	KIT- 751A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
33	SHIVANI AGARWAL	KCS- 302	KCS- 352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
34	SUMIT SHARMA	KCS- 303, KCS- 054	KCS- 353, KCS- 554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
35	SUNDEEP RAJ	KNC- 301, KCS- 503	KCS- 354, KCS- 553	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
36	TAHIRA MAZUMDER	KCS- 074, KCS- 054	KIT- 752, KIT-751	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
37	VIRENDRA SINGH	KCS- 303	KCS- 353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1. Few Students signs are missing in FM attendance Register. 2. Viva grading is not available in FM Lab attendance Register.

General Observations:

1. **IQAC String on Time -Table in Attendance registers is not updated by few faculty members.**
2. **Co-Po mapping in context of justification of extra topics document needs to be mapped correctly understood by faculty members.**
3. **Methodology for TA assesements is not available in FM Course files.**

Auditor1 Dr. Neelam Kr. Gupta 19/12/22

Auditor2 Dr. Akash Kumar 19/12/22

Auditor3 Mr. Jay Kant Pratap Singh 19/12/22

19/12/22

MR

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Ajay Kumar Garg Engineering College, Ghaziabad

Internal Academic Audit (2022-23) Odd Sem) - MCA DEPARTMENT

S.No.	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register	
1	Dr. B.K Sharma	KCA-021		Y	Y	Y	Y	Y	Y	Y	NA	NA	NA	NA	OK
2	Dr. Saroj Bala	RCA-501, KCA-301, KCA-104	RCA-551, KCA-351	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	OK
3	Ms. Arpna Saxena	RCA-E31, KCA-014, KCA-101	KCA-152, KCA-353	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	OK
4	Ms. Indu Verma	RCA-E45, KCA-303, KCA-102	KCA-151	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	OK
5	Ms Mani Dwivedi	RCA-E24, KCA-302	RCA-552, KCA-352	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	OK
6	Ms. Aman Gupta	RCA-502	KCA-353	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	OK

ALL THE FILES ARE AS PER REQUIRED FORMAT AND GUIDELINES.

AUDITOR 1 Dr Seema Garg

AUDITOR 2 Vivek Pansari

19/12/22

Signature of Auditor

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Ajay Kumar Garg Engineering College, Ghaziabad

Internal Academic Audit (2022-23 Odd Sem)

Department Audited: ME

Date: 16/12/2022

Auditor's Name:

1. Asstt. Prof. Dushyant Singh Chauhan (ECE)
2. Asstt. Prof. Niti Maheshawari (AS&H)

S.No	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	I.WS Composition and Compilation	Mapping of extra topics (theory) with cos& PO-	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated cos with POs& PSOs	Updation of Attendance Register (Lab)	
1	PROF. PALLAS BISWAS	KVE-301	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
2	PROF. DEVENDRA SINGH	KME- 502, BME-101	KME-753	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
3	PROF.IP SHARMA	KME- 303	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
4	PROF. PRADEEP JAIN	KME- 071, KME-071 KME- 071 , KME- 071	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
5	AJAY DUBEY	BME- 101	BWS- 151,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
6	AKRITI GUPTA	BME- 101	BWS- 151,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
7	AMIT TRIPATHI	KAU- 051, BME-101	BCE- 151,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	One attendance marked in lab register instead of two attendance.
8	ANSHUL PANCHBHAIYA	KME- 502	KME- 554, KME- 554 ME2A, KME- 554 ME2B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Students signature missing in attendance
9	ASHUTOSH YADAV	KOE- 074, KME-072,	KME- 752, KME- 751, BCE-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
10	DILIP KUMAR	KOE- 076, KAU-052,	BCE-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		

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Ajay Kumar Garg Engg. College
Ghaziabad

11	GAJESH KUMAR	BME- 101,	KME-753, BWS-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
12	HARI CHAURASIYA	KME- 501, BWS-151	KME- 551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
13	KAMAL MITTAL	KOE- 033, BCE-151, BCS- 151, BCS- 101, BAS-104, BAS- 103, BEE- 101, BAS-101	KME- 752, KME- 354, KME- 354, KME- 503, BAS- 151, BEE- 151,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
14	DR. SUMAN GOTHWAL	KME- 073, KME-503	BWS- 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
15	VIVEK PANSARI	BME- 101	BWS- 151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

General Observations:

1. Course Correlation chart is missing in all the course file.
2. Updated strings were not mentioned in most of the course files.
3. Lab course detail was not available in most of the course file.
4. Assessment method for TA was missing on LWS in course file.

Auditor1 .....

Auditor2 .....

MR 22/12/22

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Ajay Kumar Garg Engg. College
Ghaziabad

Ajay Kumar Garg Engineering College, Ghaziabad

Internal Academic Audit (2022-23 Odd Sem)

Department Audited: TIFAC
Auditor's Name:
1. Asstt. Prof. Dushyant Singh Chauhan (ECE)
2. Asstt. Prof. Indu Verma (MCA)

Date: 14/12/2022

S.No.	Name of Faculty	Subject Code (Theory)	Subject Code (Lab)	Arranged as per Order of Formats	Theory Course Details						Lab Course Details				Remark (if any)
					Proper formulation of Course Outcomes	Proper CO-PO Mapping	LWS Composition and Compilation	Mapping of extra topics (theory) with COs & POs	Question paper formulation as per Bloom's Taxonomy	Updation of Attendance Register (Theory)	Additional Experiments	Updated COs	Mapping of updated COs with POs & PSOs	Updation of Attendance Register (Lab)	
1	Mr. D. K. Singh	KOE-074	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
2	Mr. Som Ashutosh	KME-055	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
3	Mr. Gaurav Srivastava	KOE-074	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
4	Dr. Ajay Pratap Singh	KME-076	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
5	Dr. Vivek Singh	KME-051	KME-553, KME-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
6	Mr. Mahesh Sharma	KEE-053	KEN-751	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
7	Mr. Abhishek Gupta	KOE-032	KME-551	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
8	Ms. Gaganpreet Kaur	KOE-075	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
9	Mr. Tarun Bhardwaj	KME-071	KME-352	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
10	Mr. Puneet Saini	KME-052	KME-751	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
11	Ms. Suvarna Majumdar	KEC-502	KME-553, KME-554	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
12	Mr. Himanshu Tripathi	KEC-502, KOE-077	KME-553	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
13	Dr. Namrata Gangil	MTE-023	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
14	Mr. Dinanth Prasad	KEE-053	KEN-751, KME-353	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
15	Mr. Jitendra Yadav	KME-301	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
16	Mr. Sandeep Bhatia	KEC-502	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	
17	Dr. Vishwas Grover	KOE-074	BCE-151, KME-752	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		KNC-501	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	

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18	Dr. Alok	KME-302, KOE-074	KME-351, BCE-151	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
19	Mr. Mahendra Dutt Dwivedi	KEE-075, KEE-501	KEE-551, KEN-752	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

General Observations:

1. Course Correlation chart was missing in all the course files of faculty members of ME department.
2. Assessment method for TA was missing on LWS in course file.

Auditor's Signature:

1. Dushyant (Dushyant)
2. Niti (Dr Niti Maheshwari)

MR 21/12/22

Director
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Ghaziabad

AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

27th Km. Stone, Delhi-Hapur Bypass Road, P.O. Adhyatmik Nagar, Ghaziabad -201009

AKGEC/IQAC/2022-23/05

17 February 2023

INTERNAL QUALITY ASSURANCE CELL (IQAC) MOMs

The IQAC meeting for the session 2022-23 (Even Sem) was held on 15th February 2023. The following members of the IQAC were present during the meeting:

1. Dr. P. K. Chopra, Director
2. Prof. Neelesh Kumar Gupta, ECE Department
3. Prof. Anil Rai, EN Department
4. Prof. Devendra Singh, ME Department
5. Prof. Inderjeet Kaur, CSE Department
6. Asso. Prof. Meenakshi Awasthi, ECE Department
7. Asso. Prof. Anupama Sharma, IT Department
8. Asst. Prof. Dushyant Singh Chauhan, ECE Department
9. Asst. Prof. Richa, ECE Department
10. Asst. Prof. Abhishek Tiwari, ECE Department
11. Mr. Rajeev Mishra, Manager Special Projects
12. Mr. Pradeep Bhardwaj, Manager Placements

Agenda Points

i. To present the Action Taken Report (ATR) of the IQAC Meeting dated 12 September 2022.

ii. To see the progress of the International Conference on Advancements and Key Challenges in Green Energy and Computing (AKGEC 2023) which will be held on 24 & 25 February 2023 in the college.

iii. To organize conferences and FDPs for the improvement of faculty members and students research by departments.

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iv. To consider the review and suggest improvements for different practices to enhance employability skill enrichment and quality of student projects along with students participation in various activities.

v. Monitoring of Offline Classes for 2022-23 Even Sem.

vi. Utilization of tech support for effective offline classes using smart boards.

vii. To consider reports of NPTEL /Swayam Courses on different topics for B. Tech students.

viii. To review placements status and prepare a strategy of placements for unplaced students by various departments.

ix. To consider reports of FDPs organized and participated by various department faculty members.

x. To increase the number of CCTV cameras for security purposes in the campus.

xi. Planning of internal academic audit of the teaching-learning process.

Discussion Points/ Minutes of the Meeting

Agenda Point-i-

The chairman briefly discussed the actions taken at the meeting held on 12th September 2022 and recommended to adhere to the points discussed in the meetings.

Agenda Point-ii-

The IQAC members analysed with the progress of the forthcoming International Conference on Advancements and Key Challenges in Green Energy and Computing (AKGEC 2023) by EN department and they praised the efforts of the organizing team.

Agenda Point-iii-

IQAC team motivated all the departments to plan International conferences with indexing in Scopus/IEEE/Springer etc.

Agenda Point-iv-

In order to promote employability skill enrichment, the quality of student projects, and student engagement, IQAC members took proposals into consideration and gave instructions to all departments on how to follow guidelines for changes. They specially emphasized the quality of B. Tech projects.

Agenda Point-v-

The department should deliver good quality content (PPTs, PDFs of courses, Video supervision of senior faculty members of the monitoring committee. The Academ committee should check the quality as per plan.

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Agenda Point-vi-

Modern teaching ICT tools such as smart boards are to be incorporated into taking offline classes along with black boards.

Agenda Point-vii-

The Team checked the reports of NPTEL /Swayam Courses completed on different topics for B. Tech students in last semester (2022-23 Odd Sem). They expressed satisfaction also for the same.

Agenda Point-viii-

Team members thoroughly discussed about the strategy and planning for the placement of unplaced students. Also, inform HoDs to motivate students to sit in the placement process.

Agenda Point-ix-

IQAC members expressed their satisfaction on reports of FDPs organized and participated by faculty members of various departments of the institute.

Agenda Point-x-

The Team discussed the importance of CCTVs in the institute and expressed their satisfaction with the same with respect to security purposes.

Agenda Point-xi-

The team for the Internal Academic Audit of the Teaching-learning process will be formed. The schedule of the next IQAC audit is as follows:

2022- 23 (Even Sem)

S. No	Audit Duration	Date
1.	Sessional Test Exam	As per Academic Calendar
2.	Pre-University Test	As per Academic Calendar

Following guidelines are to be strictly followed in the maintenance of both theory, practical attendance record and course file by each faculty member.

(a) Properly formulated CO statements as per Bloom's Taxonomy for both Theory and Lab subjects.

(b) Mapping of COs with POs and PSOs as per NBA guidelines (DSP/NBA/2022/01 & DSP/NBA/2022/02) shared by the DSP.

(c) Question paper of internal assessments (STs/PUT) prepared as per NBA (DSP/NBA/2022/03) with appropriate weightage given to questions from Bloom's levels.

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(d) Identification of theory topics beyond the syllabus and their inclusion in Lecture-Wise Schedule (LWS). Mapping of the additional topics with relevant COs and POs/PSOs is also to be documented in LWS.

(e) Additionally, the details of the Lab(s) taken by respective faculty to be appended after the theory subject details in the same course file. The following details regarding the Lab subjects to be documented:

  (i) List of Experiments as per AKTU Syllabus.

  (ii) Identification of experiments beyond the syllabus and their relevance to COs and POs/PSOs.

  (iii) Updated COs after including additional experiments.

  (iv) Updated CO-PO/PSO mapping of the respective Lab Course.

(f) Ensuring filling attendance on AKTU AMS/Edu Marshal portal.

(g) Only P (Present), A (Absent) and A_c (Present with college duty) should be marked in the attendance register, no dot should be put & overwriting is to be avoided.

(h) Topper, Bottomer, Hostlers, Discipline and Not registered cases to be marked.

(i) Ensuring all entries on attendance registers (Theory and Lab).

(j) All documents should be arranged as per the order of format with their proper strings.

(k) Lecture wise schedule should be updated upto ST exam and signed by HoD.

Dr. P. K. Chopra

Director

Copy to:

i. All HoDs, faculty members

ii. Industry members

iii. Alumni

Director
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Ghaziabad

Ajay Kumar Garg Engineering College, Ghaziabad

September 30,2021

NBA accreditation status of the Courses and branches being run by the College.

As of now M.Tech., MCA, B.Tech. Civil Engineering and all newly introduced branches namely, Computer Science, Computer Science and Information Technology, Computer Science & Engineering (Data Science), Computer Science and Engineering (AI&ML), Artificial Intelligence and Machine Learning and Computer Science & Engineering (Hindi) are not accredited.

The courses and branches accredited by NBA up to June 2022 are stated below:

Sl. No.	Name of the Program	Accreditation Status
1.	Computer Science & Engineering	Accredited
2.	Electronics & Communication Engineering	Accredited
3.	Electrical & Electronics Engineering	Accredited
4.	Information Technology	Accredited
5.	Mechanical Engineering	Accredited

(Dr. R. K. Agarwal)
Director General

Director
Ajay Kumar Garg Engg. College
Ghaziabad

File No. _____

AJAY KUMAR GARG ENGINEERING COLLEGE

27th Km. Stone, NH-24, Delhi-Hapur ByPass Road, Adhyatmik Nagar, Ghaziabad-201009
Phones : 8744052891 to 94, 7290034976, 7290034978

AKGEC/MOD/WI/07

COURSE FILE

DEPARTMENT: APPLIED SCIENCES & HUMANITIES

NAME OF FACULTY: Dr. BANDANA SHARMA

SUBJECT & SUBJECT CODE: ENGINEERING PHYSICS, BAS101

SECTION & SEMESTER: (S-2, S-7) & FIRST

SESSION: ODD SEMESTER, 2022-23

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ORDER OF FORMATS

1.	Quality Policy	AKGEC/IQAC/QY/01
2.	Quality Objectives	AKGEC/IQAC/QY/02
3.	Program Educational Objectives, Program Outcomes & Course Outcomes	AKGEC/IQAC/OBE/01
4.	Extra Topic CO PO Mapping with Justification	AKGEC/IQAC/OBE/02
5.	Course Correlation Chart	AKGEC/IQAC/OBE/03
6.	Time Table	AKGEC/IQAC/LDP/01
7.	University Syllabus	AKGEC/IQAC/LDP/02
8.	Lecture Delivery Schedule, Its compliance dates & Target (Attendance & Academic)	AKGEC/IQAC/LDP/03
9.	Lab Course Details	AKGEC/IQAC/LDP/04
10.	Handouts and Lecture Delivery Notes	AKGEC/IQAC/LDP/05
11.	List of Toppers & Bottomers	AKGEC/IQAC/AR/01
12.	Absentee Report of ST/PUT	AKGEC/IQAC/AR/02
13.	Attendance Record of Debarred Students in Extra Classes	AKGEC/IQAC/AR/03
14.	Attendance Register (Theory & Lab)	AKGEC/LDP/FM/04
15.	Tutorial Sheets	AKGEC/IQAC/QP/01
16.	Class Test Papers	AKGEC/IQAC/QP/02
17.	Sessional Test Papers	AKGEC/IQAC/QP/03
18.	Pre- University Test Papers	AKGEC/IQAC/QP/04
19.	Previous Year University Question Papers	AKGEC/IQAC/QP/05

18/08/2022
Prof. Neelesh Kumar Gupta
MR

18/08/2022
Asst. Prof. Dushyant Singh
DMR

18/08/2022
Asst. Prof. Abhishek Tiwari
DMR

Director
Ajay Kumar Garg Engg. College
Ghaziabad

AKGEC/IQAC/QY/01

Ajay Kumar Garg Engineering College, Ghaziabad

27th KM Milestone, Delhi - Meerut Expy, Ghaziabad, Uttar Pradesh 201009

06/04/2022

Quality Policy

To provide and continually improve academic environment and systems which give total satisfaction and enable students to develop their full potential and mature into competent professionals and responsible members of society.

Director

Director
Ajay Kumar Garg Engg. College
Ghaziabad

Ajay Kumar Garg Engineering College, Ghaziabad

27th KM Milestone, Delhi - Meerut Expy, Ghaziabad, Uttar Pradesh 201009

06/04/2022

Quality Objectives

S.No	Quality Objectives	Measurements
1.	Enhancing satisfaction of customers.	• Rating on feedback taken from students, parents, and organizations.
2.	Enhancing academic environment.	• Results of examinations. • Class attendance. • Merit position in university examination. • Higher qualification by faculty.
3.	Provide additional learning resources	• Development of teaching resources for students. • Use of ICT tools.
4.	Developing students as mature and competent professionals.	• Participation in professional courses organized by AKGEC. • Selection in leading organizations.
5.	Excellence in all processes	• Compliances to all requirements that we follow for high-quality rating.
6.	Growth in placements of students.	• Selection of students in leading organizations. • Addition of new organization for placements.
7.	Encourage research, innovation, and consultancy projects.	• Research seminar & publication by faculty members and students.

Director

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AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

PROGRAM EDUCATIONAL OBJECTIVES: CSE

PEO 1. The graduate of CSE will have a strong foundation in mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problem in their career.

PEO 2. The graduate of CSE will have the ability to analyses the requirements, understand the technical specification and design the much engineering solutions by applying computer science theory and principles.

PEO 3. The graduates of CSE will have exposure to work as teams on emerging cutting edge technologies with effective communication skills and leadership qualities.

PEO 4. The graduates of CSE will have successful career by engaging in life long learning.

PEO 5. The graduates of CSE will have skills to work collaboratively on multidisciplinary projects and exhibits high levels of professional and ethics values.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex Computer Science & Engineering problems.

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions**: Design solutions for complex Computer Science & Engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including predic
Computer Science & engineering activities with an und

Dr. Bandana Sharma
(SUBJECT TEACHER)

Dr. Niti Mah
NBA COORDINATOR

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6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex Computer Science & engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes in the field of Computer Science.

PROGRAM SPECIFIC OUTCOMES (PSOS)

PSO 1: Ability to exhibit analytical & logical skills and apply knowledge of Maths and Computer Science to design, develop, test and maintenance of software solutions.

PSO 2: Ability to identify, formulate and resolve real life/social problems by using current computer technology.

Dr. Bandana Sharma
(SUBJECT TEACHER)

Dr. Niti Mai
NBA COORDINATOR

Director
Ajay Kumar Garg Engg. College
Ghaziabad

AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

Sub. Name: Engineering Physics	Sub Code:BAS101	NBA course code:C101	Sem:I

	Course Outcomes w.e.f: 2022-23
C101.1	To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.
C101.2	To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations.
C101.3	To recognize wave behavior using various examples and applications of interference and diffraction phenomena, as well as to **interpret** the concepts of grating and resolving power.
C101.4	To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.
C101.5	To **describe** the properties and applications of superconducting materials and nanomaterials.

CO-PO/PSO Mapping: (CSE)

		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
	Learning Level	2	2	3	2	2	2	2	2	2	2	2	2	2	3
C101.1	2	3	3	2	3	3							3	3	2
C101.2	2	3	3	2	3	3							3	3	2
C101.3	1	1	1	1	1	1							1	1	1
C101.4	2	3	3	2	3	3							3	3	2
C101.5	1	1	1	1	1	1							1	1	1

3 : If, CO≥PO, Then the weightage 3

2, 1 : If, CO< PO, Then the weightage of CO as it is.

Dr. Bandana Sharma
(SUBJECT TEACHER)

Dr. Niti Mah
NBA COORDINATOR

Director
Ajay Kumar Garg Engg. College
Ghaziabad

AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

Sub. Name: Engineering Physics	Sub Code:BAS101	NBA course code:C101	Sem:I

	Course Outcomes w.e.f: 2022-23
C101.1	To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.
C101.2	To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations.
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C101.4	To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.
C101.5	To **describe** the properties and applications of superconducting materials and nanomaterials.

CO-PO/PSO Mapping: CSE(DS)

		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
	Learning Level	2	2	3	2	2	2	2	2	2	2	2	2	2	3
C101.1	2	3	3	2	3	3							3	3	2
C101.2	2	3	3	2	3	3							3	3	2
C101.3	1	1	1	1	1	1							1	1	1
C101.4	2	3	3	2	3	3							3	3	2
C101.5	1	1	1	1	1	1							1	1	1

3 : If, CO≥PO, Then the weightage 3

2, 1 : If, CO< PO, Then the weightage of CO as it is.

Dr Bandana Sharma
(SUBJECT TEACHER)

Dr Niti Ma
NBA COORDINATOR

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Ajay Kumar Garg Engg. College
Ghaziabad

AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

Sub. Name: Engineering Physics	Sub Code:BAS101	NBA course code:C101	Sem:I

	Course Outcomes w.e.f: 2022-23
C101.1	To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.
C101.2	To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations.
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C101.4	To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.
C101.5	To **describe** the properties and applications of superconducting materials and nanomaterials.

CO-PO/PSO Mapping: CSE(AI&ML)

		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
	Learning Level	2	2	3	2	2	2	2	2	2	2	2	2	2	3
C101.1	2	3	3	2	3	3							3	3	2
C101.2	2	3	3	2	3	3							3	3	2
C101.3	1	1	1	1	1	1							1	1	1
C101.4	2	3	3	2	3	3							3	3	2
C101.5	1	1	1	1	1	1							1	1	1

3 : If, CO≥PO, Then the weightage 3

2, 1 : If, CO< PO, Then the weightage of CO as it is.

Dr. Bandana Sharma (SUBJECT TEACHER)

Dr. Neti Nath (NBA COORDINATOR)

Director
Ajay Kumar Garg Engg. College
Ghaziabad

AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

Sub. Name: Engineering Physics	Sub Code:BAS101	NBA course code:C101	Sem:I

	Course Outcomes w.e.f: 2022-23
C101.1	To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.
C101.2	To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations.
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C101.4	To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.
C101.5	To **describe** the properties and applications of superconducting materials and nanomaterials.

CO-PO/PSO Mapping: (AI&ML)

		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
	Learning Level	2	2	3	2	2	2	2	2	2	2	2	2	2	3
C101.1	2	3	3	2	3	3							3	3	2
C101.2	2	3	3	2	3	3							3	3	2
C101.3	1	1	1	1	1	1							1	1	1
C101.4	2	3	3	2	3	3							3	3	2
C101.5	1	1	1	1	1	1							1	1	1

3 : If, CO≥PO, Then the weightage 3

2, 1 : If, CO< PO, Then the weightage of CO as it is.

Dr. Bandana Sharma
(SUBJECT TEACHER)

Dr. Niti Mo
NBA COORDINATOR

Director
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Ghaziabad

AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

PROGRAM EDUCATIONAL OBJECTIVES: EN

PEO1. Graduates of the program will apply skills and knowledge of Electrical and Electronics Engineering along with basic sciences, engineering's and humanities to solve the problems of social, environmental and industrial relevance and or peruse higher studies and research.

PEO2. Graduates of the program will engage in design and analysis of systems, tools and applications in the field of Electrical and Electronics Engineering.

PEO3. Graduates of the program will work effectively as individual and as team in the inter-disciplinary projects, and acquire leadership and communication skills suitable for the profession.

PEO4. Graduates of the program will engage in lifelong learning, career enhancement and adapt to evolving societal and environmental needs, maintaining professional ethics.

PEO5. Graduates of the program will apply the contextual know-how and reasoning to address issues related health safety and socio-cultural consideration and appreciate impact of Electrical & Electronics Engineering solutions for above areas and environmental sustainability.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

PO1.Engineering knowledge: Apply knowledge of Basic Sciences, Mathematics, Engineering Fundamentals of Electrical and Electronics Engineering to solve the complex engineering problems.

PO2.Problem analysis: Systematically analyse the complex engineering problems and substantiate conclusions employing the basic concepts of Mathematical, Natural and Engineering sciences.

PO3.Design/development of solutions: Develop viable solutions for the complex Engineering problems & processes and design the system components satisfying the specific needs of public health, safety and socio-environmental considerations.

PO4.Conduct investigations of complex problems: Investigate complex engineering problem using research based knowledge and methods to arrive at valid conclusion.

PO5.Modern tool usage: Develop the competence of modern engineering and IT tools and apply them appropriately to predict and model complex engineering problems and systems.

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PO6.The engineer and society: Apply the contextual knowledge and reasoning to assess the issues like health, safety, legal and socio-cultural considerations relevant to the professional electrical engineering practices.

PO7.Environment and sustainability: Appreciate the impact of professional electrical engineering solutions on the society and environment and their sustainability.

PO8.Ethics: Practice good professional ethics, responsibilities and norms.

PO9.Individual and team work: Work effectively as individual and team member in a multidisciplinary setting.

PO10.Communication: Communicate effectively with the engineering fraternity and society about complex electrical engineering problems; comprehend and write reports, design documentation and make presentations.

PO11.Project management and finance: Apply the understanding of engineering and management principles at work places and handle projects in multi-disciplinary environment.

PO12.Life-long learning: Develop an urge for independent, lifelong learning in broader context of technological changes.

PROGRAM SPECIFIC OUTCOMES (PSOS)

PSO1. Apply concepts & tools of Electrical and Electronics Engineering to address problems encountered in power sector in particular and other sectors in general.

PSO2. Design, Analyze, test and install electrical machine and instruments, Modern Power System and its components and microprocessor & microcontroller based systems.

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DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

Sub. Name: Engineering Physics	Sub Code:BAS101	NBA course code:C101	Sem:I

W.E.F: 2022-23

	Course Outcomes
C101.1	To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.
C101.2	To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations.
C101.3	To recognize wave behavior using various examples and applications of interference and diffraction phenomena, as well as to **interpret** the concepts of grating and resolving power.
C101.4	To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.
C101.5	To **describe** the properties and applications of superconducting materials and nanomaterials.

CO-PO/PSO Mapping: (EN)

		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
	Learning Level	2	2	3	2	2	2	2	2	2	2	2	2	2	3
C101.1	2	3	3	2	3	3							3	3	2
C101.2	2	3	3	2	3	3							3	3	2
C101.3	1	1	1	1	1	1							1	1	1
C101.4	2	3	3	2	3	3							3	3	2
C101.5	1	1	1	1	1	1							1	1	1

3 : If, CO≥PO, Then the weightage 3

2, 1 : If, CO< PO, Then the weightage of CO as it is.

Dr. Bandana Sharma — (SUBJECT TEACHER)

Dr. Niti Mahesh — NBA COORDINATOR

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Ajay Kumar Garg Engg. College
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AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD

PROGRAM EDUCATIONAL OBJECTIVES: ME

PEO 1: The graduates of the mechanical engineering progamme will have adequate knowledge of science, mathematics and management field to suitably use it in practical problem studies and analysis to arrive at right solutions/decisions.

PEO 2: The graduate of the mechanical engineering programme will have sound and in-depth knowledge and skill of core mechanical fields viz. Machine Design, Manufacturing Technology, Thermal Sciences (Basics & Applied), CAD/CAM, hydraulics and mechanics, Strength of Materials and Materials Science in particular and other associated fields of mechanical engineering in general. The graduates of mechanical engineering programme will have successful professional careers.

PEO 3: The graduates of mechanical engineering programme will acquire additional advanced and updated knowledge through modified curriculum by making use of technological facilities available in centre of excellence (Tifac-core) of the institute.

PEO 4: To promote institute and industry relations through regular interactions and by creating memorandum of understanding between the two. The graduates of mechanical engineering will be capable of demonstrating their management skills as leaders/members of a team in engineering assignments.

PEO 5: The graduates of mechanical engineering programme will continue to learn and to adapt in a world of constantly evolving technology. The graduate of mechanical engineering programme will be capable of continuing further higher studies at National and international level.

PROGRAM OUTCOMES (POs)

PO 1:Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2:Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3:Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4:Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

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PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6:The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7:Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8:Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9:Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10:Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11:Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12:Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs): ME

PSO 1: Research Skills: Use research based knowledge to conduct investigations, analysis and interpretation of the information from relevant literature to arrive at valid conclusions.

PSO 2: Analytical Skills: Identify, formulate and analyze complex engineering problems related to mechanical engineering domain.

PSO 3: Problem-Solving Skills: Apply knowledge of mathematics and science to solve engineering problems in the broad area of thermal, design and production and simultaneously develop problem solving skills.

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AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

Sub. Name: Engineering Physics	Sub Code:BAS101	NBA course code:C101	Sem:I

W.E.F: 2022-23

	Course Outcomes
C101.1	To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.
C101.2	To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations.
C101.3	To recognize wave behavior using various examples and applications of interference and diffraction phenomena, as well as to **interpret** the concepts of grating and resolving power.
C101.4	To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.
C101.5	To **describe** the properties and applications of superconducting materials and nanomaterials.

CO-PO/PSO Mapping: (ME)

		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO1 1	PO 12	PS O1	PSO 2	PSO 3
	Learning Level	2	2	3	2	2	2	2	2	2	2	2	2	2	3	2
C101.1	**2**	3	3	2	3	3							3	3	2	3
C101.2	**2**	3	3	2	3	3							3	3	2	3
C101.3	**1**	1	1	1	1	1							1	1	1	1
C101.4	**2**	3	3	2	3	3							3	3	2	3
C101.5	**1**	1	1	1	1	1							1	1	1	1

3 : If, CO≥PO, Then the weightage 3

2, 1 : If, CO< PO, Then the weightage of CO as it is.

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EXTRA TOPIC CO-PO MAPPING WITH JUSTIFICATION: ENGINEERING PHYSICS

S. No.	Topic	Related Unit	Relevance to COs	Relevance to POs/PSOs	Justification
1	Heisenberg Uncertainty principle and its application	1	CO1	PO1-PO5, PO12, PSO1, PSO2	The Heisenberg Uncertainty Principle is the outcome of wave mechanics, so this concept was introduced so that students could understand how this concept is applicable for microscopic particles.
2	Radiation pressure and momentum	2	CO2	PO1-PO5, PO12, PSO1, PSO2	The concept of radiation pressure arises due to the exchange of momentum between the electromagnetic field and the object. This force is seen since electromagnetic waves carry transport momentum. Since radiation pressure is used in many applications, its basic description is added as an extra topic.
3	Young's double slit experiment and Fresnel's Biprism experiment	3	CO3	PO1-PO5, PO12, PSO1, PSO2	Young's double slit experiment and Fresnel's biprism experiment is the best examples to understand how coherent sources are generated to get a sustained interference pattern.
4	Main components of a laser system	4	CO4	PO1-PO5, PO12, PSO1, PSO2	In order to understand the complete working of a laser, it is essential to understand the main components of a laser. So, the description of these components and their roles is included in the extra topics.
5	Carbon nanotubes (CNTs)	5	CO5	PO1-PO5, PO12, PSO1, PSO2	Carbon nanotubes (CNTs) have attracted significant interest due to their unique combination of properties, which make them suitable for a wide range of applications in areas from electronics to biotechnology and other applications. So their description is added as an extra topic.

Dr. Bandana Sharma

Faculty Name & Signature

Dr. Niti Maheshwari

NBA Coordinator

Prof. S. L. Kapoor

HOD Signature

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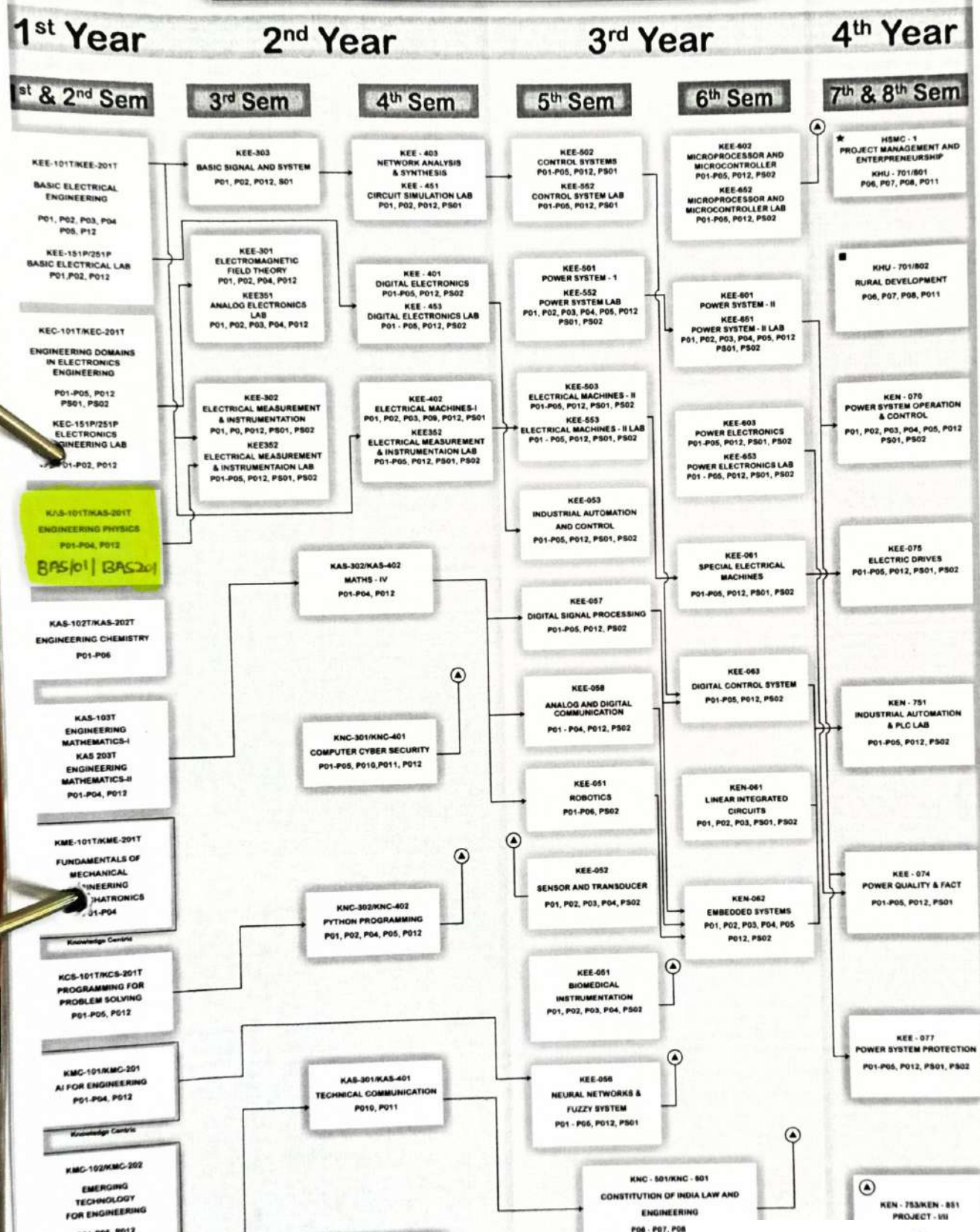
AKGEC/IQAC/OBE/03

COURSE CORRELATION
B.TECH EN



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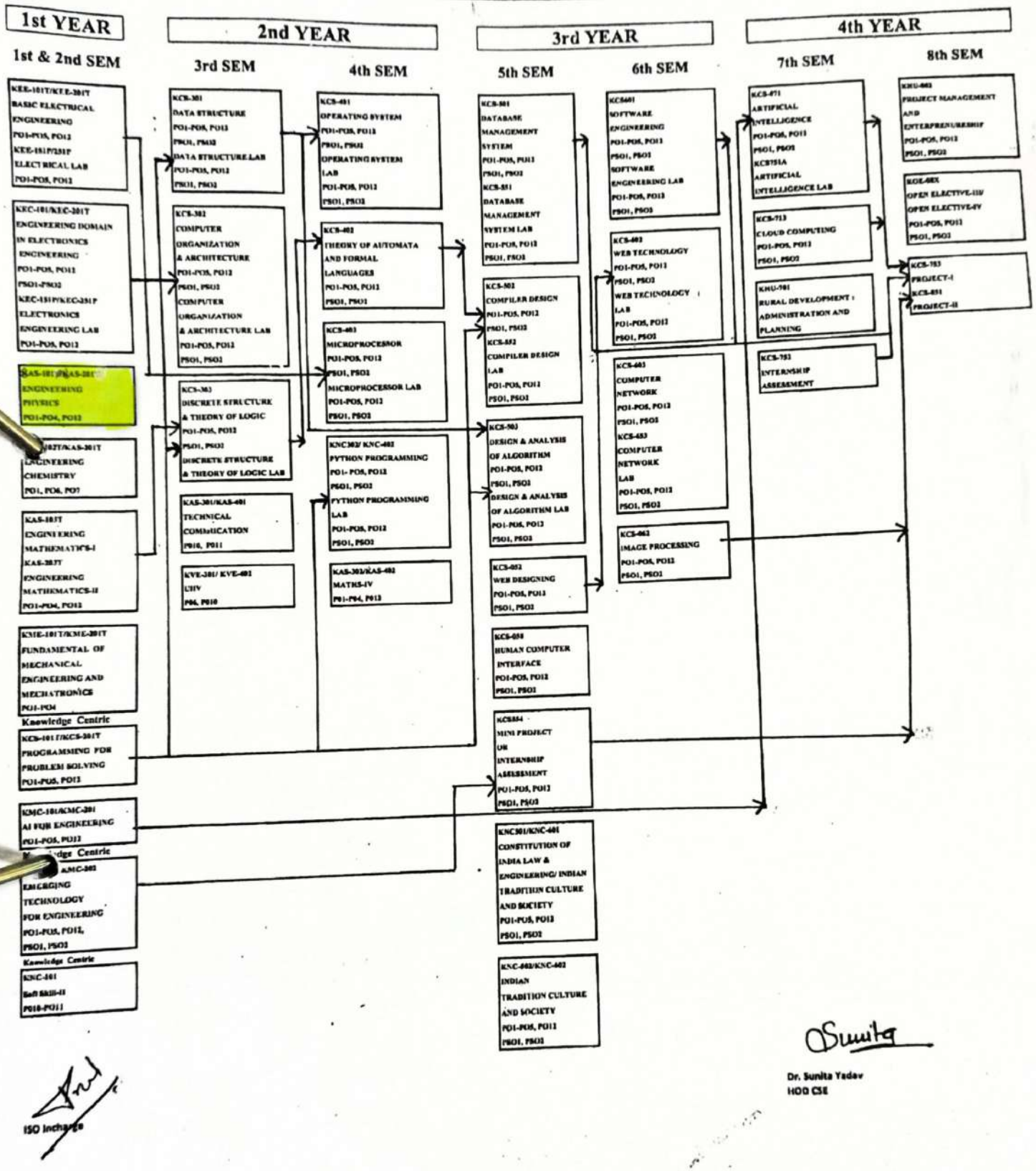
COURSE CORRELATION B.TECH CSE-2022

AKGEC/IQAC/OBE/03



ISO Incharge

Dr. Sunita Yadav
HOD CSE

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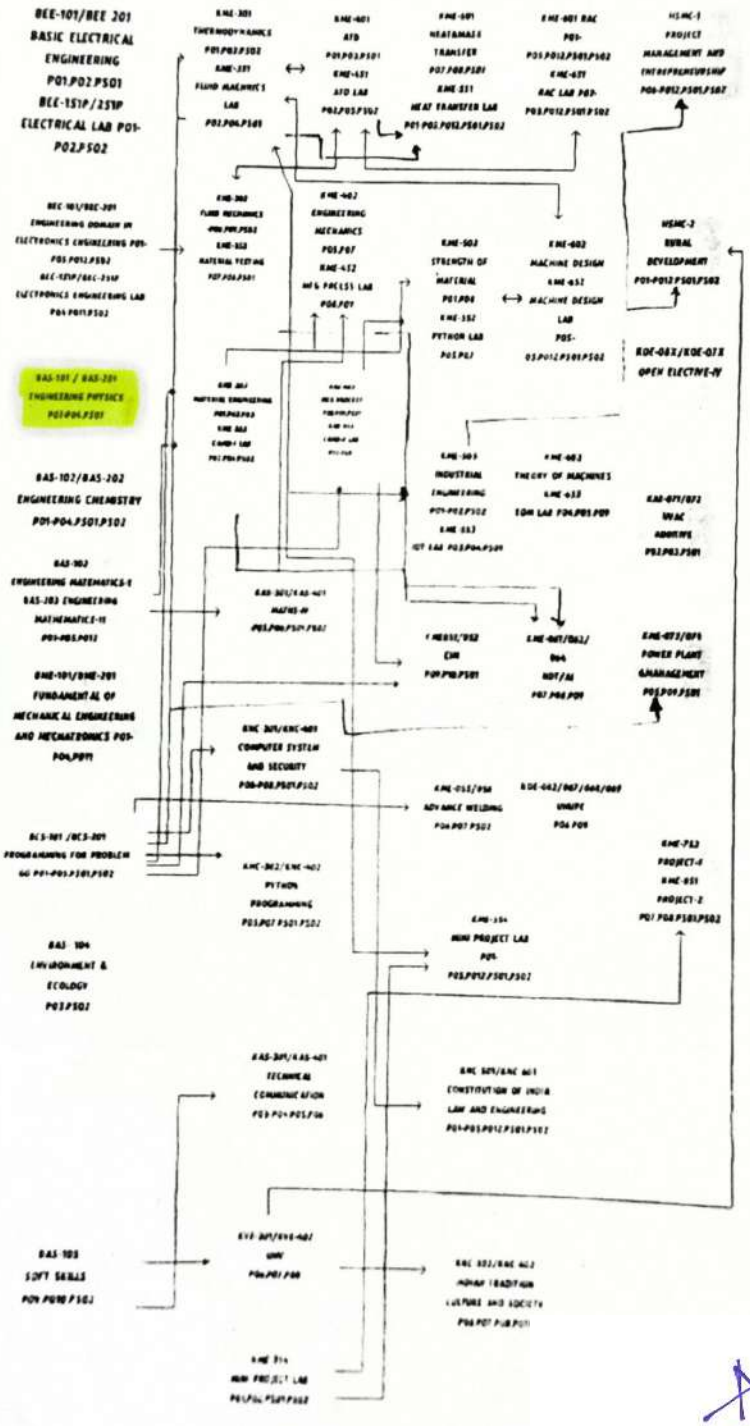
COURSE CORRELATION
B.TECH ME

I YEAR	II YEAR		III YEAR		IV YEAR
1st & 2nd SEM	3rd SEM	4th SEM	5th SEM	6th SEM	7th & 8th SEM



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AKGEC/IEAC/LDP/01

Ajay Kumar Garg Engineering College, Ghaziabad
Faculty Wise Time Table

Name of the Faculty : Dr. Bandana Sharma | Department : AS&HUM | Sem. : I | Year/Session : 2022-23 | First

	1	2	3	4	5	6	7	8	9				
PERIOD/DAY	8:30-9:20	9:20-10:10	10:10-11:00	11:00-11:50	11:-50-12:40	12:40-1:30	1:30-2:20	2:20-3:10	3:10-4:00	L	T	P	Total L+P/2
MONDAY	S-2		S-2A					S-7		11		8	15
TUESDAY	S-7	S-2						S-7A		FACULTY SIGNATURE			
WEDNESDAY	S-7B			S-2	S-7					Target	ST-1	ST-2	PUT	UT
THURSDAY					S-7		S-2			Pass %	80	90	90	100
FRIDAY	S-7				S-2B			S-2		Class Avg	50	50	55	60
SATURDAY		S-2		S-7						I/C TT HOD				

12/10/22

No.	Sub Code/Lab Code	Sub Name/ Lab Name	Course	Semester	Section	Venue
1.	BAS101/BAS151	Engineering Physics/Engineering Physics Lab	B.TECH	I	S-2	NLT-2
2.	BAS101/BAS151	Engineering Physics/Engineering Physics Lab	B.TECH	I	S-7	NLT-7

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(Prof. S. L. Kapoor)

B. Tech. First Year, Semester- I

(All Branches except Agriculture Engineering and Biotechnology)

3- WEEKS STUDENT INDUCTION PROGRAMME in the beginning of the session

SN	Subject Code	Subject Name	Type	Category	Period			Evaluation Scheme					Credit
								Sessional Component		Sessional (SW) (TS/PS)	End Semester Examination (ESE)	Total	
					L	T	P	CT	TA	CT+TA	TE/PE	SW+ESE	Cr
1.	BAS101/ BAS102	Engineering Physics/ Engineering Chemistry	T	BS	3	1	0	20	10	30	70	100	4
2.	BAS103	Engineering Mathematics-I	T	BS	3	1	0	20	10	30	70	100	4
3.	BEE101/ BEC101	Fundamentals of Electrical Engineering/ Fundamentals of Electronics Engineering	T	ES	2	1	0	20	10	30	70	100	3
4.	BCS101/ BME101	Programming for Problem Solving/ Fundamentals of Mechanical Engineering	T	ES	2	1	0	20	10	30	70	100	3
5.	BAS104/ BAS105	Environment and Ecology/ Soft Skills	T	BS/ HS	3	0	0	20	10	30	70	100	3
6.	BAS151/ BAS152	Engineering Physics Lab/ Engineering Chemistry Lab	P	BS	0	0	3	-	50	50	50	100	1
7.	BEE151/ BEC151	Basic Electrical Engineering Lab/ Basic Electronics Engineering Lab	P	ES	0	0	3	-	50	50	50	100	1
8.	BCS151/ BAS155	Programming for Problem Solving Lab/ English Language Lab	P	ES/ HS	0	0	3	-	50	50	50	100	1
9.	BCE151 / BWS151	Engineering Graphics & Design Lab/ Workshop Practice Lab	P	ES	0	1	3	-	50	50	50	100	2
					13	5	12			350	550	900	22

Abbreviation Used:

BS: Basic Science Course
ES: Engineering Science Course
HS: Humanities and Social Science Course
VA: Value Added Course

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BAS101 / BAS201: ENGINEERING PHYSICS

Content	Contact Hours
Unit-1: Quantum Mechanics	**9**
Inadequacy of classical mechanics, Planck's theory of black body radiation(qualitative), Compton effect, de-Broglie concept of matter waves, Davisson and Germer Experiment, Phase velocity and group velocity, Time-dependent and time-independent Schrodinger wave equations, Physical interpretation of wave function, Particle in a one-Dimensional box.	
Unit-2: Electromagnetic Field Theory	**8**
Basic concept of Stoke's theorem and Divergence theorem, Basic laws of electricity and magnetism, Continuity equation for current density, Displacement current, Maxwell equations in integral and differential form, Maxwell equations in vacuum and in conducting medium, Poynting vector and Poynting theorem, Plane electromagnetic waves in vacuum and their transverse nature. Relation between electric and magnetic fields of an electromagnetic wave, Plane electromagnetic waves in conducting medium, Skin depth.	
Unit-3: Wave Optics	**10**
Coherent sources, Interference in uniform and wedge shaped thin films, Necessity of extended sources, Newton's Rings and its applications, Introduction to diffraction, Fraunhoffer diffraction at single slit and double slit, Absent spectra, Diffraction grating, Spectra with grating, Dispersive power, Resolving power, Rayleigh's criterion of resolution, Resolving power of grating.	
Unit-4: Fiber Optics & Laser	**9**
Fibre Optics: Principle and construction of optical fiber, Acceptance angle, Numerical aperture, Acceptance cone, Step index and graded index fibers, Fiber optic communication principle, Attenuation, Dispersion, Application of fiber. **Laser**: Absorption of radiation, Spontaneous and stimulated emission of radiation, Population inversion, Einstein's Coefficients, Principles of laser action, Solid state Laser (Ruby laser) and Gas Laser (He-Ne laser), Laser applications.	
Unit-5: Superconductors and Nano-Materials:	**8**
Superconductors: Temperature dependence of resistivity in superconducting materials, Meissner effect, Temperature dependence of critical field, Persistent current, Type I and Type II superconductors, High temperature superconductors, Properties and Applications of Super-conductors. **Nano-Materials:** Introduction and properties of nano materials, Basics concept of Quantum Dots, Quantum wires and Quantum well, Fabrication of nano materials -Top-Down approach (CVD) and Bottom-Up approach (Sol Gel), Properties and Application of nano materials.	

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Course Outcomes:

On completion of course the students are able :		
CO	**CO Statement**	**Bloom's Level**
CO1	To explain the distribution of energy in black body radiation and to understand the difference in particle and wave nature with explanation of Compton effect and Schrodinger wave equation.	Understanding, Apply
CO2	To understand the concept of displacement current and consistency of Ampere's law and also the properties of electromagnetic waves in different medium with the use of Maxwell's equations.	Understanding, Analyze
CO3	To understand the behavior of waves through various examples/applications of interference and diffraction phenomenon and the concept of grating and resolving power.	Apply
CO4	To know the functioning of optical fiber and its properties and applications. To understand the concept, properties and applications of Laser.	Understanding, Apply
CO5	To know the properties and applications of superconducting materials and nano materials.	Understanding

Reference Books:

1. Concepts of Modern Physics - Aurthur Beiser (Mc-Graw Hill)
2. Optics - Brijlal & Subramanian (S. Chand)
3. Engineering Physics: Theory and Practical- Katiyar and Pandey (Wiley India)
4. Applied Physics for Engineers- Neeraj Mehta (PHI Learning, New)
5. Engineering Physics-Malik HK and Singh AK (Mc Graw Hill)

Dr. Bandana Sharma

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AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

COURSE: B.Tech. **Sem: I** **Name of Faculty:** Dr. Bandana Sharma

Subject Code: BAS101 **Name of the subject:** Engineering Physics

Type of Course: Regular course

Internal Marks : 30 **External Marks** : 70

Contact Hours and type of course:

L	T	P
5	0	0

Course Assessment Methods:

S.No	Assessment Type	Frequency	Held At	Weightage
1	SESSIONAL TEST-1	Once a Semester	College level	25
2	SESSIONAL TEST-2	Once a Semester	College level	50
3	PRE-UNIVERSITY TEST	Once in a Semester	College level	70
4	END SEMESTER EXAMS	Once in a Semester	University level	70

UNIT	No of Topics	No of lectures	No of lectures held (Section:ST)	
1	9	11	17	
2	9	10	19	* (CT-1 — 1 lect) ST-1 — 2 lect
3	10	12	15	
4	9	9	16	
5	8	8	14	* (CT-2 — 1 lecture) ST-2 — 2 lecture
Extra topic	5	5	05	* (PUT : 02 lec)
Total units-Five	**Total Topics-** 50	**Total Lectures-** 55	86	

Target Details:

S.No.	Target		ST-1	ST-2	PUT	UT
1	Academic	Pass %	80	90	90	100
		Class Average	50	50	55	60
2	Attendance		95	95	95	95

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Prerequisites: An understanding of fundamental concepts and the mathematical foundations of

1 Classical Mechanics

2 Electrostatics and Magnetostatics

3 Optics (interference and diffraction)

4 Light-matter interactions

5 Materials and Their Characteristics

Pre-requisite for the following courses:

Electromagnetic Field Theory

Optical Communication

Material Science

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Syllabus Monitoring Team

HOD Signature

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COURSE OUTCOMES

C101.1: To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.

C101.2: To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations

C101.3: To recognize wave behavior using various examples and applications of interference and diffraction phenomena, as well as to **interpret** the concepts of grating and resolving power

C101.4: To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.

C101.5: To **describe** the properties and applications of superconducting materials and nanomaterials

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LECTURE WISE SCHEDULE

SECTION: S-7....

UNIT 1: QUANTUM MECHANICS					
Sl. No.	**Topic**	**No. of Lectures required**	**No. of Lectures held**	**Held on date**	**Remarks**
1	Inadequacy of classical Mechanics, Planck's theory of black body radiation (qualitative)	1	2	14/11 15/11	
2	Compton's Effect	2	2	16/11 17/11	
3	De-Broglie concept of matter waves	1	1	18/11	
4	Davisson and Germer Experiment	1	2	22/11 23/11	
5	Phase velocity and group velocity	1	2	24/11 25/11	
6	Time-dependent Schrodinger's wave equations	1	2	26/11 28/11	
7	Time-independent Schrodinger's wave equations	1	2	28/11 29/11	
8	Physical interpretation of wave function and conditions fulfilled by wave function	1	1	30/11	
9	Particle in a one-Dimensional box	2	3	1/12, 2/12 5/12	
Lectures Scheduled = 11				**Lectures held = 11**	

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LECTURE WISE SCHEDULE

SECTION: S-7

UNIT 2: ELECTROMAGNETIC FIELD THEORY					
Sl. No.	**Topic**	**No. of Lectures required**	**No. of Lectures held**	**Held on date**	**Remarks**
1	Basic concept of Stoke's theorem and Divergence theorem, Basic laws of electricity and magnetism	1	2	6|12 8|12	7|12 (CT)
2	Continuity equation for current density	1	1	8|12	
3	Displacement current, Maxwell equations in integral and differential form	1	1	9|12	13|12 13|12 (STI)
4	Maxwell equations in vacuum and plane electromagnetic wave equations in vacuum	1	2	20|12 21|12	
5	Transverse nature of electromagnetic wave in free space.	2	3	22|12 23|12 27|12	
6	Maxwell equations in conducting medium	1	2	27|12 27|12	
7	Plane electromagnetic waves in conducting medium , Skin depth	1	2	28|12 28|12	
8	Poynting vector and Poynting theorem	1	1	29|12	
9	Relation between electric and magnetic fields of an electromagnetic wave	1	2	29|12 29|12	
Lectures Scheduled = 10				**Lectures held =** 16+3=19	

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LECTURE WISE SCHEDULE

SECTION: S-7..

UNIT-3: WAVE OPTICS					
Sl. No.	Topic	No. of Lectures required	No. of Lectures held	Held on date	Remarks
1	Coherent sources and their formation	1	1	30/12	
2	Interference in uniform thin films	1	2	3/1 3/1	
3	Interference in wedge shaped thin films	1	1	4/1	
4	Necessity of extended sources	1	1	4/1	
5	Newton's Ring experiment and its applications	2	2	5/1 5/1	
6	Introduction to diffraction, Fraunhoffer's diffraction at single slit	1	2	6/1 6/1	
7	Double slit diffraction and absent spectra	1	1	6/1	
8	Diffraction grating Spectra, missing order and maximum possible order with grating	2	2	7/1 9/1	
9	Dispersive power, Resolving power, Rayleigh's criterion of resolution	1	1	10/1	
10	Resolving power of grating	1	2	10/1, 11/1	
Lectures Scheduled = 12			Lectures held =	15	

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LECTURE WISE SCHEDULE

SECTION: S-7..

UNIT 4 : FIBER OPTICS & LASER					
Sl. No.	**Topic**	**No. of Lectures required**	**No. of Lectures held**	**Held on date**	**Remarks**
1	Principle and construction of optical fiber	1	1	11/1	
2	Acceptance angle, Numerical aperture, Acceptance cone	1	2	12/01 13/01	
3	Step index and graded index fibers	1	2	16/01 17/01	
4	Attenuation, Dispersion, Application of fiber	1	2	18/01 19/01 (CT)	
5	Absorption of radiation, Spontaneous and stimulated emission of radiation	1	2	20/01 20/01	
6	Einstein's Coefficients and Einstein's relation	1	2	24/01 25/01	
7	Population inversion, Principles of laser action	1	1	27/01	31/01 31/07 (ST2)
8	Solid state Laser (Ruby laser)	1	1	6/2	
9	Gas Laser (He-Ne laser), Laser applications.	1	1	07/02	
Lectures Scheduled = 09				**Lectures held = 14+2 =16**	

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LECTURE WISE SCHEDULE

SECTION: S-7..

UNIT 5: SUPERCONDUCTORS AND NANOMATERIALS

Sl. No.	Topic	No. of Lectures required	No. of Lectures held	Held on date	Remarks
1	Temperature dependence of resistivity in superconducting materials	1	2	7/2 8/2	
2	Meissner effect, Temperature dependence of critical field, Persistent current	1	2	8/2 9/2	
3	Type I and Type II superconductors	1	1	10/2	
4	High temperature superconductors, Properties and Applications of Super-conductors	1	2	11/2 13/2	
5	Nano-Materials: Introduction and properties of nano materials	1	1	14/2	
6	Basics concept of Quantum Dots, Quantum wires and Quantum well	1	2.	14/2 15/2	
7	Fabrication of nano materials –Top Down approach (CVD) and Bottom-Up approach (Sol Gel)	1	1	15/2	
8	Properties and Application of nano materials	1	1	16/2	$\frac{25}{2}, \frac{25}{2}$ (PUT)

Lectures Scheduled = 08 **Lectures held = 12+2 = 14**

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EXTRA TOPICS COVERAGE						
S.No.	Topic	No. of Lectures Required	Related Unit	No. of Lectures Held	Held on Date	Remarks
1	Heisenberg Uncertainty principle and its application	1	1	1	26/11	
2	Radiation pressure and momentum	1	2	1	30/12	
3	Young's double slit experiment and Fresnel's Biprism experiment	1	3	1	2/1	
4	Main components of a laser system	1	4	1	23/1	
5	Carbon nanotubes (CNTs)	1	5	1	13/2	
	Total Lectures Scheduled.....55.....		**Total Lectures held**.....56.....			

Books Required:

1. Concepts of Modern Physics - Aurthur Beiser (Mc-Graw Hill)
2. Optics - Brijlal & Subramanian (S. Chand)
3. Engineering Physics: Theory and Practical- Katiyar and Pandey (Wiley India)
4. Applied Physics for Engineers- Neeraj Mehta (PHI Learning, New)
5. Engineering Physics-Malik HK and Singh AK (Mc Graw Hill)

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AJAY KUMAR GARG ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

COURSE: B.Tech. **Sem:** I **Name of Faculty:** Dr. Bandana Sharma

Subject Code: BAS101 **Name of the subject:** Engineering Physics

Type of Course: Regular course

Internal Marks : 30 **External Marks** : 70

Contact Hours and type of course:

L	T	P
5	0	0

Course Assessment Methods:

S.No	Assessment Type	Frequency	Held At	Weightage
1	SESSIONAL TEST-1	Once a Semester	College level	25
2	SESSIONAL TEST-2	Once a Semester	College level	50
3	PRE-UNIVERSITY TEST	Once in a Semester	College level	70
4	END SEMESTER EXAMS	Once in a Semester	University level	70

UNIT	No of Topics	No of lectures	No of lectures held (Section: S2)	
1	9	11	17*	*(CT1 - 1 lect)
2	9	10	16*	(ST1 - 2 lect)
3	10	12	16*	(*CT2 - 1 lect)
4	9	9	11*	(* ST2 - 2 lect)
5	8	8	10*	(* PUT - 2 lect)
Extra topic	5	5	05	
Total units- Five	**Total Topics-** 50	**Total Lectures-** 55	75	

Target Details:

S.No.	Target		ST-1	ST-2	PUT	UT
1	Academic	Pass %	80	90	90	100
		Class Average	50	50	55	60
2	Attendance		95	95	95	95

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Prerequisites: An understanding of fundamental concepts and the mathematical foundations of

1 Classical Mechanics

2 Electrostatics and Magnetostatics

3 Optics (interference and diffraction)

4 Light-matter interactions

5 Materials and Their Characteristics

Pre-requisite for the following courses:

Electromagnetic Field Theory

Optical Communication

Material Science

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COURSE OUTCOMES

C101.1: To explain the distribution of energy in black body radiation and to **differentiate** between particle and wave nature with an explanation of Compton's effect and Schrodinger's wave equation.

C101.2: To explain the concept of displacement current and the consistency of Ampere's law, as well as to **examine** the properties of electro-magnetic waves in various mediums using Maxwell's equations

C101.3: To recognize wave behavior using various examples and applications of interference and diffraction phenomena, as well as to **interpret** the concepts of grating and resolving power

C101.4: To describe the functioning of optical fiber, its properties, and to **distinguish** between different types of optical fiber. To understand the concept, properties, and applications of lasers.

C101.5: To **describe** the properties and applications of superconducting materials and nanomaterials

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LECTURE WISE SCHEDULE

SECTION: S-2

UNIT 1: QUANTUM MECHANICS					
Sl. No.	Topic	No. of Lectures required	No. of Lectures held	Held on date	Remarks
1	Inadequacy of classical Mechanics, Planck's theory of black body radiation (qualitative)	1	2	14/11 15/11	
2	Compton's Effect	2	2	16/11 17/11	
3	De-Broglie concept of matter waves	1	2	21/11 22/11	
4	Davisson and Germer Experiment	1	1	23/11	
5	Phase velocity and group velocity	1	2	24/11 25/11	
6	Time-dependent Schrodinger's wave equations	1	2	28/11 29/11	
7	Time-independent Schrodinger's wave equations	1	2	30/11 01/12	
8	Physical interpretation of wave function and conditions fulfilled by wave function	1	1	05/12	
9	Particle in a one-Dimensional box	2	3	06/12, 06/12 08/12	07/12 (CT)
Lectures Scheduled = 11				Lectures held = 17	

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LECTURE WISE SCHEDULE

SECTION: S-2

UNIT 2: ELECTROMAGNETIC FIELD THEORY					
Sl. No.	**Topic**	**No. of Lectures required**	**No. of Lectures held**	**Held on date**	**Remarks**
1	Basic concept of Stoke's theorem and Divergence theorem, Basic laws of electricity and magnetism	1	1	9/12	13/5, 13/2 ST I
2	Continuity equation for current density	1	1	21/12	
3	Displacement current, Maxwell equations in integral and differential form	1	2	21/12 22/12	
4	Maxwell equations in vacuum and plane electromagnetic wave equations in vacuum	1	2	22/12 23/12	
5	Transverse nature of electromagnetic wave in free space.	2	3	27/12 28/12 28/12	
6	Maxwell equations in conducting medium	1	2	29/12 29/12	
7	Plane electromagnetic waves in conducting medium , Skin depth	1	1	30/12	
8	Poynting vector and Poynting theorem	1	1	2/1	
9	Relation between electric and magnetic fields of an electromagnetic wave	1	1	3/1	
Lectures Scheduled = 10				**Lectures held = 14+2 = 16**	

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LECTURE WISE SCHEDULE

SECTION: S-2

UNIT-3: WAVE OPTICS					
Sl. No.	**Topic**	**No. of Lectures required**	**No. of Lectures held**	**Held on date**	**Remarks**
1	Coherent sources and their formation	1	1	4|1	
2	Interference in uniform thin films	1	1	6|1	
3	Interference in wedge shaped thin films	1	2	7|1 9|1	
4	Necessity of extended sources	1	1	10|01	
5	Newton's Ring experiment and its applications	2	2	11|01 11|01	
6	Introduction to diffraction, Fraunhoffer's diffraction at single slit	1	1	12|01	
7	Double slit diffraction and absent spectra	1	2	13|01 13|01	
8	Diffraction grating Spectra, missing order and maximum possible order with grating	2	3	16|01 17|01 18|01	
9	Dispersive power, Resolving power, Rayleigh's criterion of resolution	1	1	19|01	
10	Resolving power of grating	1	1	19|01	20|01 (CT2)
Lectures Scheduled = 12			**Lectures held =**	15+01 = 16	

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LECTURE WISE SCHEDULE

SECTION: S-2...

UNIT 4 : FIBER OPTICS & LASER					
Sl. No.	**Topic**	**No. of Lectures required**	**No. of Lectures held**	**Held on date**	**Remarks**
1	Principle and construction of optical fiber	1	1	23/01	
2	Acceptance angle, Numerical aperture, Acceptance cone	1	1	24/01	
3	Step index and graded index fibers	1	1	25/01	31/01, 31/01 S12
4	Attenuation, Dispersion, Application of fiber	1	1	27/01	
5	Absorption of radiation, Spontaneous and stimulated emission of radiation	1	1	6/2	
6	Einstein's Coefficients and Einstein's relation	1	1	7/2	
7	Population inversion, Principles of laser action	1	1	7/2	
8	Solid state Laser (Ruby laser)	1	1	8/2	
9	Gas Laser (He-Ne laser), Laser applications.	1	1	9/2	
Lectures Scheduled = 09					**Lectures held = 9+2 = 11**

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LECTURE WISE SCHEDULE

SECTION: S-2...

UNIT 5: SUPERCONDUCTORS AND NANOMATERIALS

Sl. No.	Topic	No. of Lectures required	No. of Lectures held	Held on date	Remarks
1	Temperature dependence of resistivity in superconducting materials	1	1	10/2	
2	Meissner effect, Temperature dependence of critical field, Persistent current	1	1	10/2	
3	Type I and Type II superconductors	1	1	11/2	
4	High temperature superconductors, Properties and Applications of Super-conductors	1	1	12/2	
5	Nano-Materials: Introduction and properties of nano materials	1	1	13/2	
6	Basics concept of Quantum Dots, Quantum wires and Quantum well	1	1	14/2	
7	Fabrication of nano materials –Top Down approach (CVD) and Bottom-Up approach (Sol Gel)	1	1	15/2	
8	Properties and Application of nano materials	1	1	16/2	$\frac{25}{2}$, $\frac{25}{2}$ PUT

Lectures Scheduled = 08 **Lectures held = 6 + 2 = 10**

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EXTRA TOPICS COVERAGE						
S.No.	Topic	No. of Lectures Required	Related Unit	No. of Lectures Held	Held on Date	Remarks
1	Heisenberg Uncertainty principle and its application	1	1	1	26/11	
2	Radiation pressure and momentum	1	2	1	4/1	
3	Young's double slit experiment and Fresnel's Biprism experiment	1	3	1	5/1	
4	Main components of a laser system	1	4	1	8/2	
5	Carbon nanotubes (CNTs)	1	5	1	15/2	
	Total Lectures Scheduled.....55.....		**Total Lectures held...75.....**			

Books Required:

1. Concepts of Modern Physics - Aurthur Beiser (Mc-Graw Hill)
2. Optics - Brijlal & Subramanian (S. Chand)
3. Engineering Physics: Theory and Practical- Katiyar and Pandey (Wiley India)
4. Applied Physics for Engineers- Neeraj Mehta (PHI Learning, New)
5. Engineering Physics-Malik HK and Singh AK (Mc Graw Hill)

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DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

LAB COURSE DETAILS

LAB NAME WITH LAB CODE: ENGINEERING PHYSICS LAB: BAS151/BAS251
SECTIONS TAUGHT: B.TECH. FIRST YEAR (S-1 to S-10)

SUGGESTIVE LIST OF EXPERIMENTS AS PER AKTU

Group A

1. To determine the wavelength of sodium light by Newton"s ring experiment.
2. To determine the wavelength of different spectral lines of mercury light using plane transmission grating. 3. To determine the specific rotation of cane sugar solution using polarimeter.
4. To determine the focal length of the combination of two lenses separated by a distance and verify the formula for the focal length of combination of lenses
5. To measure attenuation in an optical fiber.
6. To determine the wavelength of He-Ne laser light using single slit diffraction.
7. To study the polarization of light using He-Ne laser light.
8. To determine the wavelength of sodium light with the help of Fresnel"s bi-prism.
9. To determine the coefficient of viscosity of a given liquid.
10. To determine the value of acceleration due to gravity (g) using compound pendulum.

Group B

1. To determine the energy band gap of a given semiconductor material.
2. To study Hall Effect and determine Hall coefficient, carrier density and mobility of a given semiconductor material using Hall effect setup.
3. To determine the variation of magnetic field with the distance along the axis of a current carrying coil and estimate the radius of the coil.
4. To verify Stefan"s law by electric method.
5. To determine resistance per unit length and specific resistance of a given resistance using Carey Foster's Bridge.
6. To study the resonance condition of a series LCR circuit.
7. To determine the electrochemical equivalent (ECE) of copper.
8. To calibrate the given ammeter and voltmeter by potentiometer.
9. To draw hysteresis (B-H curve) of a specimen in the form of a transformer and to determine its hysteresis loss.
10. To measure high resistance by leakage method.

Additional Experiments

S.NO	Experiment Title	Relevance to CO	Relevance to POs
1	To find the magnetic susceptibility of paramagnetic solution $FeCl_3$.	CO4, CO5	PO1-PO5, PO-12, PSO1, PSO2
2	To find the moment of inertia of a fly wheel.	CO5	PO1-PO5, PO-12, PSO1, PSO2

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Course Outcomes as per AKTU syllabus:

CO1: Apply the principle of interference and diffraction to find the wavelength of monochromatic and polychromatic light.

CO2: Compute and analyze various electrical and electronic properties of a given material by using various experiments.

CO3: Verify different established laws with the help of optical and electrical experiments.

CO4: Determine and calculate various physical properties of a given material by using various experiments.

CO5: Study and estimate the performance and parameter of given equipment by using graphical and computational analysis.

Updated Course Outcomes after including additional Experiments:

CO1: To implement the basic principles and concepts of optics (interference, diffraction, and polarization) to find the wavelength of monochromatic and polychromatic light.

CO2: To examine and differentiate various electrical and electronic properties of a material by using various experiments.

CO3: To execute different established laws with the help of optical and electrical experiments.

CO4: To demonstrate and determine various physical properties of a given material by using various experiments.

CO5: To evaluate and study the performance and parameters of given equipment by using graphical and computational analysis.

Final CO-PO/PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	1	1							1	1	1
CO2	3	3	2	3	3							3	3	2
CO3	1	1	1	1	1							1	1	1
CO4	1	1	1	1	1							1	1	1
CO5	3	3	2	3	3							3	3	2

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UPDATION OF COs AFTER INCLUDING ADDITIONAL EXPERIMENTS

B.Tech. First Year (Common)

ENGINEERING PHYSICS LAB (BAS151/BAS251)

SUGGESTIVE LIST OF EXPERIMENTS AS PER AKTU.

Group A

1. To determine the wavelength of sodium light by Newton"s ring experiment.
2. To determine the wavelength of different spectral lines of mercury light using plane transmission grating. 3. To determine the specific rotation of cane sugar solution using polarimeter.
4. To determine the focal length of the combination of two lenses separated by a distance and verify the formula for the focal length of combination of lenses
5. To measure attenuation in an optical fiber.
6. To determine the wavelength of He-Ne laser light using single slit diffraction.
7. To study the polarization of light using He-Ne laser light.
8. To determine the wavelength of sodium light with the help of Fresnel"s bi-prism.
9. To determine the coefficient of viscosity of a given liquid.
10. To determine the value of acceleration due to gravity (g) using compound pendulum.

Group B

1. To determine the energy band gap of a given semiconductor material.
2. To study Hall Effect and determine Hall coefficient, carrier density and mobility of a given semiconductor material using Hall effect setup.
3. To determine the variation of magnetic field with the distance along the axis of a current carrying coil and estimate the radius of the coil.
4. To verify Stefan"s law by electric method.
5. To determine resistance per unit length and specific resistance of a given resistance using Carey Foster's Bridge.
6. To study the resonance condition of a series LCR circuit.
7. To determine the electrochemical equivalent (ECE) of copper.
8. To calibrate the given ammeter and voltmeter by potentiometer.
9. To draw hysteresis (B-H curve) of a specimen in the form of a transformer and to determine its hysteresis loss.
10. To measure high resistance by leakage method.

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Experiments available on virtual lab:

Group A	Virtual Lab Link	Alternate Lab Link
1 To determine the wavelength of sodium light by Newton's ring experiment.	https://vlab.amrita.edu/?sub=1 &brch=189&sim=335&cnt=1	http://vlabs.iitb.ac.in/vlabsdev/labs/mit_bootcamp/engg_physics /labs/exp1/simulation/simulator 4.htm l?medium=1
2 To determine the wavelength of different spectral lines of mercury light using plane transmission grating.	http://vlab.amrita.edu/?sub=1 &brch=281&sim=334&cnt=1	
3 To determine the specific rotation of cane sugar solution using polarimeter	http://vlabs.iitb.ac.in/vlabsdev /labs/physics-basics/labs/canesugar-rotation-iitk/simulation.html	
4 To determine the focal length of the combination of two lenses separated by a distance and verify the formula for the focal length of combination of lenses.	http://vlabs.iitb.ac.in/vlabsdev /labs/physics-basics/labs/focallength-measurementiitk/simulation.html	
5 To measure attenuation in an optical fiber.	http://vlab.amrita.edu/index.php?sub=59&brch=269&sim=13 69&cnt=2873	http://vlabs.iitb.ac.in/vlabsdev/labs/physicsbasics/labs/numerical-aperturemeasurement-iitk/simulation.html
6 To determine the wavelength of He-Ne laser light using single slit diffraction.	http://vlab.amrita.edu/index.php/index.php?sub=1&brch=189 &sim=334&cnt=1	https://youtu.be/0qIN2qHCvvs (Laser diffraction grating)
7 To study the polarization of light using He-Ne laser light.	http://vlabs.iitb.ac.in/vlabsdev /labs/physics-basics/labs/he-nelaser-polarizationiitk/simulation.html	
8 To determine the wavelength of sodium light with the help of Fresnel's biprism	http://vlabs.iitb.ac.in/vlabsdev /labs/physicsbasics/labs/fresnel-biprismiitk/simulation.html	
9 To determine the coefficient of viscosity of a given liquid.	https://amrita.olabs.edu.in/?sub=1&brch=5&sim=225&cnt=2	
10 To determine the value of acceleration due to gravity (g) using compound pendulum.	http://vlab.amrita.edu/?sub=1 &brch=280&sim=210&cnt=2	
Group B	**Virtual Lab Link**	**Alternate Lab Link**
1 To determine the energy band gap of a given semiconductor material.	http://vlabs.iitb.ac.in/vlabsdev /labs/physicsbasics/labs/energy-band-gapiitk/simulation.html	http://vlabs.iitb.ac.in/vlabsdev/labs/physics-basics/labs/energyband-gap-iitk/simulation.html
2 To study Hall effect and determine Hall coefficient, carrier density and mobility of a given semiconductor material using Hall effect setup.	https://vlab.amrita.edu/?sub=1 &brch=282&sim=879&cnt=1	https://youtu.be/lUugrqMOY7E (Hall Effect)
3 To determine the variation of magnetic field with the distance along	http://vlab.amrita.edu/?sub=1 &brch=192&sim=972&cnt=1	https://youtu.be/y2B0QyW8XJ0 (Variation of Magnetic Field

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the axis of a current carrying coil and estimate the radius of the coil.		along the axis of circular coil carrying current)
4 To verify Stefan's law by electric method.	http://vlabs.iitb.ac.in/vlabsdev/vlab_bootcamp/bootcamp/vlabs_recbanda/labs/exp1/index.html	https://youtu.be/qyFQ31s-bAw(Stefans law verification)
5 To determine resistance per unit length and specific resistance of a given resistance using Carey Foster's Bridge.	https://vlab.amrita.edu/?sub=1&brch=192&sim=346&cnt=1	http://vlabs.iitb.ac.in/vlabsdev/labs/physics-basics/labs/careyfoster-bridge-iitk/simulation.html
6 To study the resonance condition of a series LCR circuit.	https://vlab.amrita.edu/?sub=1 &brch=75&sim=330&cnt=1	
7 To determine the electrochemical equivalent (ECE) of copper.	http://learnphysicsdhruv.blogspot.com/2015/03/c opper-voltameter-todetermine-electro.html	https://youtu.be/drV2nbDjR1k (ECE of Copper experiment)
8 To measure high resistance by leakage method	http://vlabs.iitb.ac.in/vlabsdev/labs/physicsbasics/labs/carey-fosterbridge-iitk/simulation.html	

Additional Experiments

1. To find the magnetic susceptibility of paramagnetic solution $FeCl_3$.
2. To find the moment of inertia of a fly wheel.

Course Outcomes as per AKTU syllabus:

CO1: Apply the principle of interference and diffraction to find the wavelength of monochromatic and polychromatic light.

CO2: Compute and analyze various electrical and electronic properties of a given material by using various experiments.

CO3: Verify different established laws with the help of optical and electrical experiments.

CO4: Determine and calculate various physical properties of a given material by using various experiments.

CO5: Study and estimate the performance and parameter of given equipment by using graphical and computational analysis.

Updated Course Outcomes after including additional Experiments:

CO1: To implement the basic principles and concepts of optics (interference, diffraction, and polarization) to find the wavelength of monochromatic and polychromatic light.

CO2: To examine and differentiate various electrical and electronic properties of a material by using various experiments.

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CO3: To execute different established laws with the help of optical and electrical experiments.

CO4: To demonstrate and determine various physical properties of a given material by using various experiments.

CO5: To evaluate and study the performance and parameters of given equipment by using graphical and computational analysis.

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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

Course : B.Tech.

Year: I

Sem: I

Branches: CSE, CSE (AI&ML), CSE(DS), AI&ML, EN, ME

Section: S-2, S-7

Subject: ENGINEERING PHYSICS

Subject Code: BAS-101

No. of Units: 5

No. of Topics:50

Reference Books

1. Concepts of Modern Physics - Aurthur Beiser (Mc-Graw Hill)
2. Optics - Brijlal & Subramanian (S. Chand)
3. Engineering Physics: Theory and Practical- Katiyar and Pandey (Wiley India)
4. Applied Physics for Engineers- Neeraj Mehta (PHI Learning, New)
5. Engineering Physics-Malik HK and Singh AK (Mc Graw Hill)

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AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD (027)

B.TECH - I SEM (SEC: S-2)

Absentee Details (ST-1 ODD SEM 2022-23)

S.NO.	Student ID	Name of the Student	BAS103	BAS101	BEE101	BAS104	BCS101
Nil							

Prof. I.P. Sharma
Centre Supdt.
AKGEC Ghaziabad
(027)

Director
Ajay Kumar Garg Engg. College
Ghaziabad

AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD (027)

B.TECH - I SEM (SEC: S-7)

Absentee Details (ST-1 ODD SEM 2022-23)

S.NO.	Student ID	Name of the Student	BAS103	BAS101	BEE101	BAS104	BCS101
NIL							

Prof. I.P. Sharma
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AKGEC Ghaziabad
(027)

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AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD (027)

ABSENTEE DETAILS (ST-2 ODD SEMESTER : 2022-23)

I SEM SEC: S-7

Sl. No.	Student No.	Name of Students	30/01/2023	31/01/2023	1/2/2023	2/2/2023	3/2/2023
			BAS103	BAS101	BEE101	BAS104	BCS101
	2210076	NIKHIL VASHISHTH		ABSENT			
	22153074	ARYAN AGNIHOTRI					
	22153086	DEEPANSHU KUMAR	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT
	22153006	SHIVAM KUMAR JHA			ABSENT		
	22153035	SHREYA ARYA	ABSENT				
	22154102	PUSHPENDRA KUMAR		ABSENT	ABSENT		
	2221077	SARTHAK MITTAL					ABSENT

Prof. I.P. Sharma
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AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD (027)

ABSENTEE DETAILS (ST-2 ODD SEMESTER : 2022-23)

I SEM SEC: S-2

Sl. No.	Student No.	Name of Students	30/01/2023 BAS103	31/01/2023 BAS101	1/2/2023 BEE101	2/2/2023 BAS104	3/2/2023 BCS101
	2210131	ANSH NIPRA					ABSENT
	22153026	ANSH YADAV			ABSENT		ABSENT
	22153123	ANUVA SINGH			ABSENT		

Prof. I.P. Sharma
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AKGEC/IQAC/AR/03

Ajay Kumar Garg Engineering College, Ghaziabad

Department of Applied Sciences & Humanities

Attendance record of debarred students in extra class : ST1

Course: B.Tech
Session: 2022-23
Subject: Engineering Physics

Semester: I
Sections: S2 & S7
Sub. Code: BAS-101

S.NO	Name	Student Number		12/12	13/12	14/12	15/12	18/12	19/12
1	Harsh Dubey	22153043	S2	A	P	P	A	P	A
2	Divya Agarwal	22154123	S2	P	A	P	P	P	A
3	Ansh Yadav	22153026	S2	P	P	P	P	P	P
4	Anubhav Chaudhary	2210086	S2						
5	Harsh Kumar	2210124	S7	P	P	P	P	P	A
6	Shriya Mittal	22154137	S7	P	P	P	P	P	P
7	Shashwat Mishra	22169007	S7	P	P	P	P	P	P

DEBARRED STUDENT
EXTRA CLASS ATTENDANCE
AKGEC/IQAC/AR/03

PAPER
AKGEC/IQAC/EP/02

SESSIONAL TEST PAPER

Dr. Bandana Sharma

NAME & SIGNATURE OF FACULTY

Prof. S

HOD S

Director
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Ghaziabad

(Vikas Rathi) ST-1 Debarred students Engg. Physics BAS-101

AKGEC/IQAC/AR/03

Course: B.Tech
Sem: First
Sub. code: BAS 101
Engg. Physics

STUDENTS THOSE WHO HAVE ATTENDANCE LESS THAN 74.45% IN ST-1 (14-11-22 TO 08-12-2022)

ATTENDANCE SHEET

			12/12	13/12	14/12	15/12	16/12	17/12		
1	22164013	AKARSH SAHLOT	P	P	P	P	P	A		S-1
2	22154060	ANAND SHAH	P	P	P	P	P	P		
3	22154038	ABHINAV YADAV	A	A	A	A	A	A		
4	2210017	ANKIT VARSHNEY	P	P	P	P	P	P		
5	22153043	HARSH DUBEY	A	P	P	A	P	A		S-2
6	22154123	DIVYA AGARWAL	P	P	P	P	P	P		
7	22153026	ANSH YADAV	P	A	P	P	P	A		
8	2210086	ANUBHAV CHAUDHARY	P	P	P	P	P	P		
10	22154106	ANURAG NAGYAN	P	P	P	P	P	P		S-3
11	22154032	KAPIL KUMAR SINGH	P	P	P	P	P	A		
12	22154012	HIMIT NARAYAN	P	P	P	P	P	P		
13	22153047	KHUSHI RANI	P	P	P	P	P	P		
14	22154065	AMAN YADAV	P	P	P	P	P	P		
15	2210164	RISHABH SINGH	P	P	P	P	P	A		
16	22154104	MOHD AYAAN	P	P	P	P	A	A		
	22153007	KHUSHAHAL GUPTA	P	P	P	P	P	A		
18	2210152	AMAN SANKHWAR	P	P	P	P	A	A		
19	2240069	KUSHAGRA SAXENA	P	P	P	P	P	P		S-4
20	2210157	AMIT YADAV	P	P	P	P	P	P		
21	2210155	ARISHA FATIMA	P	P	A	A	A	A		S-5
22	22153008	SANDEEP GUPTA	P	P	P	P	P	P		S-6
23	2210124	HARSH KUMAR	P	P	P	P	P	A		S-7
24	22154137	SHRIYA MITTAL	P	P	P	P	P	P		
25	22164007	SHASHWAT MISHRA	P	P	P	P	P	P		
26	2210158	HARSH VARDHAN GUPTA	P	P	P	P	P	P		S-8
27	22164011	NIKIT KUMAR KUSHWAHA	P	P	P	P	P	P		
28	2210160	ANUJ KUMAR	P	P	P	P	P	P		
29	22154082	SANJIT SINHA	P	P	P	P	P	P		
30	22153105	ROHIT YADAV	P	P	P	P	P	P		
31	22154049	TANUJ KUMAR SHARMA	P	P	A	P	A	A		
	2210092	SURYA PRATAP	A	P	P	P	P	A		
	22153092	SHAURYA GUPTA	P	P	P	P	P	P		
	22154109	HARSHDEEP SINGH	A	P	A	P	P	A		S-9
	22164047	NAMAN JAIN	P	P	P	P	P	P		
	22154059	RAMENDRA PANDEY	P	P	P	P	P	P		
	22154051	UDDESHYA TYAGI	P	P	P	P	P	P		

DEBARRED STU
EXTRA CLASS ATTEDANC
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CLASS TEST PAPER
AKGEC/IQAC/QP/02
SESSIONAL TEST
P/03
YEAR
/QP/05

(Dr. Bandana Sharma)

Vikas Rathi

Director
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AJAY KUMAR GARG ENGG.COLLEGE GHAZIABAD
TUTORIAL SHEET 1

DEPARTMENT: AS & HUMANITIES
SEMESTER: I
SUB.CODE: BAS101
OBE REMARKS:

COURSE: B.TECH
SUBJECT- ENGINEERING PHYSICS

Q.NO	a-j	k-t	u-z
CO NO	CO1	CO2	CO3

Submission Date: ....8/12/2022.....

a. Explain wave-particle duality. What are matter waves? Find the de-Broglie wavelength associated with an electron which is accelerated through 50 volt.
b. Derive Schrodinger's time independent and time dependent equation. A particle is in motion between x = 0 and x = a with zero potential energy. At points for which x < 0 and x >a, the potential energy is infinite. Solving Schrodinger's equation, obtain energy eigen values and normalized wave function for the particle. Also plot first three allowed wave wave functions.
c. What is black body radiation? Describe the distribution of energy in the spectrum of black body radiation.
d. What is Planck's quantum hypothesis of radiation? Establish Planck's radiation formula and show that Wien's formula and Rayleigh Jeans's formula are special cases of Planck's formula.
e. What is Compton's effect? Derive an expression for Compton's shift.
f. Define phase velocity. Derive expression for them. Prove that phase velocity of de-Broglie wave is greater than speed of light. (with necessary diagram)
g. What is the physical significance of wave function Ψ? What conditions must it fulfill?
h. Describe Davisson Germer experiment to describe wave nature of electron.
i. Calculate the wavelength associated with1MeV electron, 1MeV proton, 1MeV photon.
j. An X-ray of wavelength 1.1Å is incident on a calcite crystal. Find the wavelength of X-ray scattered at 45° angle.
k. Explain the concept of Maxwell's Displacement current. Why there is a need of modification in Ampere's law? Write differential form of Ampere's law.
l. Derive Maxwell's equations and explain their physical significance.

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m. Derive plane electromagnetic wave equations in free space. And prove that velocity of electromagnetic space is equal to speed of light. Prove that E M wave are transverse in nature.

n. Derive wave equations in conducting medium. Show that EM wave propagating in conducting medium is an attenuated wave. Derive an expression for skin depth.

o. Define Poynting vector. Deduce Poynting theorem for the flow of energy in an electromagnetic field and explain its physical significance.

p. Find the skin depth δ at a frequency of 3.0×10^6 Hz in aluminium where $\sigma = 38.0 \times 10^6$ S/m and $\mu_r = 1$.

q. For a conducting medium, $\sigma = 5.8 \times 10^6$ Siemens/m and $\varepsilon_r = 1$. Find out the conduction and displacement current densities if the magnitude of electric field intensity E is given by $E = 150 \sin(10^{10} t)$ Volt/m.

r. The sunlight strikes the upper atmosphere of earth with energy flux $1.38 kWm^{-2}$. What will be the peak values of electric and magnetic field at the points?

s. The energy flux of $10 watt/m^2$ of a laser beam is incident on an ideal plane mirror for one hour. Find the momentum imparted in the mirror during this time and force.

t. A 100W sodium lamp radiating its power. Calculate the electric and magnetic field strength at a distance of 5m from the lamp.

u. White light falls normally on a thin film of soapy water whose thickness is $1.5X10^{-5}cm$ and refractive index is 1.33. Which wavelength in the visible region will be reflected strongly?

v. A soap film of refractive index 1.43 is illuminated by white light at an angle of 30°. The refracted light is examined by a spectroscope in which dark band corresponding to the wavelength $6X10^{-7}m$ is observed. Calculate the thickness of the film.

w. White light is incident on a soap film at an angle of $\sin^{-1}(4/5)$ and the reflected light is observed with a spectroscope. It is observed that two consecutive bands correspond to wavelength 6.1×10^{-5} cm and 6.0×10^{-5} cm. if the refractive index of the film be 4/3, calculate the thickness.

x. In Newton's ring experiment the diameter of 4th and 12th dark rings are 0.400 cm and 0.700 cm respectively. Deduce the diameter of 20th dark ring. (0.906)

y. Newton's rings are formed in reflected light of wavelength 6000Å with a liquid between plano convex lens and glass plate. If the diameter of sixth bright ring is 3.1mm and radius of curvature is 100cm, calculate the refractive index of liquid.

z. A diffraction grating used at normal incidence gives a yellow line (λ=6000Å) in a certain spectral order superimposed on a blue line (λ=4800Å) of next higher order. If the angle of diffraction is $\sin^{-1}(3/4)$, calculate the grating element.

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CLASS TEST PAPER
AKGEC/IQAC/QP/02

SESSIONAL TEST PAPER
AKGEC/IQAC/QP/03

AJAY KUMAR GARG ENGG.COLLEGE GHAZIABAD
TUTORIAL SHEET 2

DEPARTMENT: AS & HUMANITIES COURSE: B.TECH
SEMESTER: I SUBJECT- ENGINEERING PHYSICS
SUB.CODE: BAS101

OBE REMARKS:

Q.NO	a-h	i-p	q-w
CO NO	CO3	CO4	CO5

Submission Date: (a-h): 8/12/2022
(q-w): 15/2/2023

a. Derive an expression for diameters of bright and dark rings in reflected light.
b. In Newton's ring experiment the diameter of 4th and 12th dark rings are 0.400 cm and 0.700 cm respectively. Deduce the diameter of 20th dark ring. (0.906)
c. Newton's rings are formed in reflected light of wavelength 6000Å with a liquid between plano convex lens and glass plate. If the diameter of sixth bright ring is 3.1mm and radius of curvature is 100cm, calculate the refractive index of liquid.
d. Derive an expression for maximas and minimas in single slitt diffraction.
e. A diffraction grating used at normal incidence gives a yellow line (λ=6000Å) in a certain spectral order superimposed on a blue line (λ=4800Å) of next higher order. If the angle of diffraction is $\sin^{-1}(3/4)$, calculate the grating element.
f. A diffraction grating used at normal incidence gives a green line (5400Å)in a certain order superimposed on the violet line (4050Å) of the next higher order. If the angle of diffraction is 30°, calculate the value of n. Also find how many lines per cm are there is the gratings?
g. How many orders will be visible if the wavelength of incident radiation is 5000Å and the number of lines on the grating is 2620 to an inch.
h. Derive an expression for resolving power of a grating.
i. What sis the basic principle of communication in optical fibres. Describe its main components
j. Define acceptance angle and numerical Aperture in optical fibers. Derive an expression for acceptance angle and Numerical Aperture with suitable diagram.
k. A step index fiber has a core and cladding refractive indices 1.466 and 1.460 respectively. Calculate critical angle, acceptance angle and Numerical Aperture.
l. Discuss the classification of optical fibers. on the basis of refractive index. Explain the propagation mechanism in these optical fibers. What do you understand by attenuation in optical fibers, give factors responsible for it?
m. A laser has two states at 300K. If it emits radiation of wavelength 6000 Å, then calculate population ratio N_2/N_1.
n. What is the importance of metastable states in laser action? Explain with suitable diagram.
o. The optical power, after propagating through a fiber that is 500m long is reduced to 25% of its original value. Calculate the fiber loss in dB/km.
p. Describe construction, working and energy level diagram of Ruby laser.

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q. What is critical magnetic field? Describe the dependence of temperature on magnetic field in superconductors.
r. What is Meissner effect? Describe type-1 and type-2 superconductors.
s. What are the properties of High TC superconductors?
t. A superconducting tin has a critical temperature of 3.7 K at zero magnetic fields and a critical field of 0.0306 Tesla at 0 K. Find the critical field at 2 K.
u. Calculate the critical current and current density for a wire of a lead having a diameter of 1 mm at 4.2 K. The critical temperature for lead is 7.18 K and H = 6.5×10^4 A m^{-1}.
v. Find the critical current which can pass through a long thin superconducting wire of aluminum of diameter 2 mm, the critical magnetic field for aluminum is 7.9×10^3 A m^{-1}.
w. Calculate the critical current which can flow through a long thin super conducting wire of diameter 1 mm. The critical magnetic field is 7.9×10^3 Amp m^{-1}.

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Ajay Kumar Garg Engineering College, Ghaziabad
Department of Applied Sciences & Humanities
CLASS TEST-1

Course: B.Tech
Session: 2022-23
Subject: Engineering Physics
Max Marks: 10

Semester: II
Sections: S2
Sub. Code: BAS-101
Time: 40 Min

OBE Remarks: All questions are related to CO1.

Note: Answer all questions

1. Derive time independent Schrodinger's wave equation. (5)

2. Calculate de-Broglie wavelength associated with a proton of energy 16.6eV. (3)

3. An X-ray of wavelength 1 Å is incident on a calcite crystal. Find the wavelength of X-ray scattered at 30° angle. (2)

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Ajay Kumar Garg Engineering College, Ghaziabad
Department of Applied Sciences & Humanities
CLASS TEST-1

Course: B.Tech
Session: 2022-23
Subject: Engineering Physics
Max Marks: 10

Semester: I
Sections: S7
Sub. Code: BAS-101
Time: 40 Min

OBE Remarks: All questions are related to CO1.

Note: Answer all questions

1. Solve Schrodinger's equation for a particle in one dimensional infinite potential box of width 'a'. Derive an expression for energy eigen values and energy eigen functions. (5)

2. Calculate de-Broglie wavelength associated with a neutron of energy 26.6eV. (3)

3. An X-ray of wavelength 1 Å is incident on a calcite crystal. Find the wavelength of X-ray scattered at 30° angle. Find the kinetic energy of electron. (2)

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Ajay Kumar Garg Engineering College, Ghaziabad
Department of Applied Sciences & Humanities
CLASS TEST-2

Course: B.Tech
Session: 2022-23
Subject: Engineering Physics
Max Marks: 10

Semester: I
Sections: S2.....
Sub. Code: BAS-101
Time: 40 Min

OBE Remarks: All questions are related to CO1.

Note: Answer all questions

1. Derive an expression for diameters of bright and dark rings in reflected light. In Newton's ring experiment the diameter of 4th and 12th dark rings are 0.400 cm and 0.700 cm respectively. Deduce the diameter of 20th dark ring. (0.906)

2. Newton's rings are formed in reflected light of wavelength 6000Å with a liquid between plano convex lens and glass plate. If the diameter of sixth bright ring is 3.1mm and radius of curvature is 100cm, calculate the refractive index of liquid.

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SESSIONAL TEST PAPER

Ajay Kumar Garg Engineering College, Ghaziabad

Department of Applied Sciences & Humanities

SESSIONAL TEST-1

Course: B.Tech
Session: 2022-23
Subject: Engineering Physics
Max Marks: 25
Semester: I
Sections: S1-S9
Sub. Code: BAS-101
Time: 1 hour

OBE Remarks: All questions are related to CO1.
Note: Answer all questions.

Q.NO	1	2	3	4	5	6	7
CO No.	CO1	CO1	CO1	CO1	CO1	CO1	CO1
Bloom's level* (L1 to L6)	L5	L5	L2	L3	L4	L3	L5

* *Bloom's Level: L1: Remember, L2: Understand. L3: Apply, L4: Analyze, L5: Evaluate, L6: Create*

SECTION A (3X2=6)

A. Attempt all the parts.

1. Explain the concept of de-Broglie's matter wave. Find the de-Broglie wavelength associated with an electron which is accelerated through 50 volt.

2. What is phase velocity? Derive relation between phase velocity and group velocity.

3. An X-ray of wavelength 1.1Å is incident on a calcite crystal. Find the wavelength of X-ray scattered at 45° angle.

SECTION B (3X4=12)

B. Attempt all the parts.

4. What is the physical significance of wave function? Derive time independent Schrodinger's wave equation.

5. Describe Davisson-Germer experiment to show that de-Broglie wavelength is associated with the beam of electrons.

6. Describe black body radiation spectrum with a proper diagram. What are the postulates of Planck's quantum theory? Also write Planck's radiation formula.

SECTION C (1X7=7)

C. Attempt all the parts.

7. Solve Schrodinger's equation for a particle in one dimensional infinite potential box of width 'a'. Derive an expression for energy eigen values and energy eigen functions. What is the energy difference between ground and first excited state for an electron trapped in one dimensional infinite potential box of width 10nm?

PHYSICAL CONSTANTS:

Mass of electron = 9.1×10^{-31} Kg,
Speed of light = 3×10^{8} m/s,
Planck's constant: h = 6.62×10^{-34} J-s

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Department of Applied Sciences & Humanities

SESSIONAL TEST-2

Course: B.Tech
Session: 2022-23
Subject: Engineering Physics
Max Marks: 50

Semester: I
Sections: S-1 to S-9
Sub. Code: BAS101
Time: 2 hours

OBE Remarks:

Q.NO	1	2	3	4	5	6	7	8	9	10	11	12
CO No.	CO2	CO2	CO2	CO3	CO3	CO2	CO2	CO3	CO3	CO3	CO2	CO3
Bloom's level* (L1 to L6)	L2	L2	L3	L4	L5	L4	L3	L5	L5	L5	L4	L5

** Bloom's Level: L1: Remember, L2: Understand. L3: Apply, L4: Analyze, L5: Evaluate, L6: Create*

NOTE: Answer all the sections.

SECTION A

A. Attempt all the parts. **(5X2=10)**

1. Write equation of continuity and explain its physical significance.
2. A 1000W sodium lamp radiating its power. Calculate the electric and magnetic field strength at a distance of 4.5 m from the lamp.
3. Write the integral and differential form of Maxwell's equations.
4. Why an excessively thin film will appear dark in reflected system?
5. If the width of opaque part is equal to twice of width of transparent part in a grating, then which orders will be missing from the spectra?

SECTION B

B. Attempt all the parts. **(5X5=25)**

6. Define Poynting vector. Deduce Poynting theorem for the flow of energy in an electromagnetic field and explain its physical significance.
7. Derive plane electromagnetic wave equations in conducting medium. Show that EM wave propagating in conducting medium is an attenuated wave. Derive an expression for skin depth.
8. Derive an expression for interference in thin films of uniform thickness in reflected system. Light of wavelength 5893Å is reflected at nearly normal incidence from a soap film of refractive index 1.6. what is the least thickness of the film that will appear i) dark ii) bright?
9. Describe the formation of Newton's rings in reflected monochromatic light. Prove that in reflected light i) diameters of dark rings are proportional to square root of natural numbers and ii) diameter of bright rings are proportional to square root of odd numbers.
10. Explain Rayleigh's criteria for resolution. Derive an expression for resolving power of a grating. How many orders will be visible if the wavelength of incident radiation is 6000Å and the number of lines on the grating is 2610 to an inch.

PUT AKGEC/IQAC/QP/04.

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PREVIOUS YEAR PAPER

AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

Pre University Test

Course: B. Tech
Session: 2022-23
Subject: Engineering Physics
Max. Marks: 70

Semester: I
Section: S1-S9
Sub. Code: BAS101
Time: 3 hours

OBE Remarks:

Q. No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
CO No.	1	2	3	4	4	5	5	1	1	2	2	3	3	4	4	5	5
Bloom's Level* (L1 to L6)	L2	L5	L3	L2	L3	L4	L2	L5	L9	L5	L6	L6	L5	L5	L4	L4	L5
Weightage CO4: 18										Weightage CO5: 18							

**Bloom's Level: L1: Remember, L2: Understand, L3: Apply, L4: Analyze, L5: Evaluate, L6: Create*

Note: Answer **all** the sections.

Section-A

(7*2 = 14)

Attempt all the parts.

1. Explain physical significance of wave function. What are the conditions which must be fulfilled by wave function?
2. Derive equation of continuity from fourth Maxwell's equation.
3. Why extended light sources are preferred over point sources to observe the interference patterns in thin films? Explain with diagram.
4. What are main components of an optical fiber? Explain with proper diagram.
5. Describe population inversion state and metastable state in a laser system.
6. What is persistent current in superconductors?
7. What are high temperature superconductors? Give two examples.

Section-B

Attempt any three parts. **(3*7 = 21)**

8. What is Compton's effect? Derive an expression for Compton's shift. Prove that Compton shift is independent of wavelength of incident light.
9. Solve Schrodinger's equation for one dimensional motion of a particle in an infinite potential well of width 'a'. Find an expression for energy eigen values and eigen functions. Lowest energy of an electron trapped in a one dimensional potential well is 38eV. Calculate the width of the well.
10. What is Poynting vector. How Poynting theorem is derived from Maxwell's equations. The sunlight strikes the upper atmosphere of earth with energy flux 1.3 kWm^{-2}. What will be the peak values of electric and magnetic field at the layer of atmosphere?
11. Explain the concept of Maxwell's Displacement current. Why there is a need of modification in Ampere's law? For a conducting medium, $\sigma = 5.7 \times 10^6$ Siemen/m and $\varepsilon_r = 1$. Find out the conduction and displacement current densities if the magnitude of electric field intensity E is given by $E=140 \sin (10^{10} t)$ Volt/m.
12. Describe the formation of bright and dark rings by reflected monochromatic light in Newton's ring experiment. Discuss how these rings are used to measure the wavelength of light. Newton's rings are observed by keeping a plano-convex lens of 100 cm radius on a plane glass plate. If the diameter of 15th bright ring is 0.590 cm and the diameter of 5th bright ring is 0.336 c light used.

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PREVIOUS YEAR PAPER

PAPER ID-411329

Printed Page: 1 of 2

Subject Code: KAS101T

Roll No: | | | | | | | | | | | | | |

BTECH

(SEM I) THEORY EXAMINATION 2021-22

ENGINEERING PHYSICS

AKGEC/IOAC/OP/05

Time: 3 Hours **Total Marks: 100**

Note: Attempt all the sections. If require any missing data, then choose suitably.

Section A

1. Attempt all questions in brief: 2 x 10 = 20

Q.N.	Question	Marks	CO
a.	Differentiate between inertial and non- inertial frames.	2	1
b.	Show that the rest mass of a photon is zero.	2	1
c.	Write the similarities and dissimilarities between conduction and displacement current.	2	2
d.	Define the Poynting vector and write its unit.	2	2
e.	State the Wien's displacement law.	2	3
f.	Distinguish between modified and unmodified x-rays.	2	3
g.	The light rays from two independent bulbs do not show interference. Give the reason.	2	4
h.	State the Rayleigh criteria of resolution.	2	4
i.	What is an optical fibre? How does a light signal propagate through it?	2	5
j.	Write the essential requirements for the laser action.	2	5

Section B

2. Attempt any three of the following: **3 x 10 = 30**

Q.N.	Question	Marks	CO
a.	Show that $E^2=p^2c^2+m_0^2c^4$	10	1
b.	Find the skin depth δatafrequencyof3.0x 10^6Hzinaluminiumwhere $\sigma=38.0 \times 10^6$S/m and $\mu r=1$.	10	2
c.	An electron is bound in one dimensional potential box which has width 2.5 x 10^{-10}m. Assuming the height of the box to be infinite, calculate the lowest permitted energy values of the electron.	10	3
d.	White light is incident on a soap film at an angle Sin^{-1} (4/5) and the reflected light is observed with a spectroscope. It is found that two consecutive dark bands correspond to wavelengths 6.1x10^{-5} cm and 6.0x10^{-5} cm. If the refractive index of the film is 4/3, calculate the thickness.	10	4
e.	A communication system uses a 10 km fiber having a loss of 2.5dB/km. Compute the output power if the input power is 500μW.	10	5

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(SEM I) THEORY EXAMINATION 2021-22
ENGINEERING PHYSICS

Section C

3. Attempt ant one of the following: 1 x 10 =10

Q.N.	Question	Marks	CO
a.	State the postulates of special theory of relativity and derive the Lorentz transformation equations. When Lorentz transformation equations get reduced to Galilean transformation equations?	10	1
b.	State and prove the velocity addition theorem. Show that the theorem is consistent with the Einstein's second postulate.	10	1

4. Attempt any one of the following: 1 x 10 =10

Q.N.	Question	Marks	CO
a.	Establish the e-m waves' equations in free space and solve them to show that they travel with the speed of light in free space and are transverse in nature.	10	2
b.	State and prove the Poynting theorem. Show that E/H = 377 Ohm.	10	2

5. Attempt any one of the following: 1 x 10 =10

Q.N.	Question	Marks	CO
a.	What is the Planck's theory of black body radiations? Obtain an expression for the average energy of the oscillators and derive the Planck's radiation law.	10	3
b.	Write the Schrodinger's wave equation for a particle in one-dimensional box and solve it to obtain the eigen values and eigen functions.	10	3

6. Attempt any one of the following: 1 x 10 =10

Q.N.	Question	Marks	CO
a.	What do you mean by a wedge-shaped film? Discuss the interference due to it and obtain the expression for the fringe width.	10	4
b.	Discuss the formation of Newton's rings. Show that the diameters of the bright rings are proportional to the square root of odd natural numbers.	10	4

7. Attempt any one of the following: 1 x 10 =10

Q.N.	Question	Marks	CO
a.	What do you mean by acceptance angle and numerical aperture? Derive the expressions for acceptance angle and numerical aperture.	10	5
b.	What do you understand by the stimulated emission? Discuss the He-Ne laser by giving its construction and working. How He-Ne laser is superior to the Ruby laser?	10	5

Physical Constants:
Rest mass of electron $m_e = 9.1 \times 10^{-31}$kg, Speed of light $c = 3 \times 10^8$ m/s
Planck 's Constant $h = 6.63 \times 10^{-34}$ J-s, Charge on electron $e = 1.6 \times 10^{-19}$Coulomb

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PAPER ID-421047

AKGEC/IOAC/OP/05

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BTECH

(SEM II) THEORY EXAMINATION 2021-22

ENGINEERING PHYSICS

Time: 3 Hours ***Total Marks: 100***

Notes:

- *Attempt all Sections and assume any missing data.*
- *Appropriate marks are allotted to each question, answer accordingly.*

SECTION-A	Attempt **All** of the following Questions in brief	Marks**(10X2=20)**	
Q1(a)	What is frame of reference in motion?		1
Q1(b)	Show that massless particles can exist only if the they move with the speed of light and their energy E and momentum p must have the relation E= pc.		1
Q1(c)	In an electromagnetic wave, the electric and magnetic fields are 100V/m and 0.265A/m. What is the maximum energy flow		2
Q1(d)	Define the concept of Skin depth for high and low frequency waveforms.		2
Q1(e)	What is Compton effect and Compton shift?		3
Q1(f)	Why is black the best emitter?		3
Q1(g)	Why the center of Newton's ring in reflected system is dark?		4
Q1(h)	Explain Rayleigh's criterion of resolution.		4
Q1(i)	What do you mean by acceptance angle and cone for an optical fiber?		5
Q1(j)	Differentiate spontaneous emission and stimulated emission.		5

SECTION-B	Attempt **ANY THREE** of the following Questions	Marks**(3X10=30)**	
Q2(a)	What is special theory of relativity? Derive Lorentz transformation equation.		1
Q2(b)	Assuming that all the energy from a 1000 watt lamp is radiated uniformly; calculate the average values of the intensities of electric and magnetic fields of radiation at a distance of 2m from lamp.		2
Q2(c)	Calculate the energy difference between the ground state and the first excited state for an electron in a one-dimensional rigid box of length 25Å.		3
Q2(d)	Newton's rings are observed in reflected light of wavelength $5900A^0$. The diameter of 10th dark ring is 0.50cm. Find the radius of curvature of the lens.		4
Q2(e)	A step index fibre has μ_1 =1.466 and μ_2 = 1.46 where μ_1 and μ_2 are refractive indices of core and cladding respectively. If the operating wavelength of the rays is 0.85 μm and the diameter of the core = 50 μm, calculate the cut-off parameter and the number of modes which the fibre will support.		5

SECTION-C	Attempt **ANY ONE** following Question	Marks **(1X10=10)**	
Q3(a)	What was the object of conducting Michelson-Morley experiment? Illustrate the experiment with proper diagram and necessary mathematical derivations. Also state the outcomes.		1
Q3(b)	Deduce Einstein's mass –energy relation $E= mc^2$. Give some evidence showing its validity.		1

SECTION-C	Attempt **ANY ONE** following Question	Marks **(1X10=10)**	
Q4(a)	Deduce the Maxwell's equations for free space and prove that electromagnetic waves are transverse in nature.		2
Q4(b)	Define radiation pressure and momentum of electromagne an expression for radiation pressure and momentum.		

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(SEM II) THEORY EXAMINATION 2021-22

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SECTION-C	Attempt **ANY ONE** following Question	Marks (1X10=10)	
Q5(a)	What is the physical significance of a wave function? Derive Schrodinger time independent wave equation.		3
Q5(b)	What is Compton effect? Deduce an expression for Compton shift.		3

SECTION-C	Attempt **ANY ONE** following Question	Marks (1X10=10)	
Q6(a)	What is Rayleigh criterion of resolution how one can increase the resolving power of a diffraction grating? Using Rayleigh criterion for just resolution show that the resolving power of grating is equal to nN, where n is the order of the spectrum, and N is total no of lines on the grating.		4
Q6(b)	Discuss the phenomena of Fraunhofer diffraction at a single slit and show that the relative intensities of the successive maximum are nearly 1: $4/9\pi^2$: $4/25\pi^2$: $4/49\pi^2$:		4

SECTION-C	Attempt **ANY ONE** following Question	Marks (1X10=10)	
Q7(a)	A silicon optical fibre with a core diameter large enough has a core refractive index of 1.50 and a cladding refractive index 1.47. Determine (i) the critical angle at the core cladding interface, (ii) the numerical aperture for the fibre (iii) the acceptance angle in air for the fibre.		5
Q7(b)	What do you mean by population inversion? Describe the principle and working of Ruby laser system with the help of neat diagram.		5

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Subject Code: KAS101

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B- TECH
(SEM I) THEORY EXAMINATION 2020-21
PHYSICS

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Qno.	Question	Marks	CO
a.	What are inertial and non-inertial frames of reference? Is an earth is inertial or non-inertial frame?	2	1
b.	If one photon has a speed c in one reference frame, can it be at rest in some other frame of reference explain?	2	1
c.	Give the physical signifance of equation of continuity.	2	2
d.	Calculate radiation pressure exerted by electromagnetic waves.	2	2
e.	Explain Black body radiation spectrum graph on the basis of quantum physics.	2	3
f.	Explain why a thick film shows no color in reflected white light.	2	4
g.	Differentiate between ψ and $\|\psi\|^2$	2	3
h.	What is dispersive power of plane transmission grating?	2	4
i.	Why population inversion is necessary for laser action?	2	5
j.	What do you mean by dispersion in optical fiber?	2	5

SECTION B

2. Attempt any *three* of the following:

Qno.	Question	Marks	CO
a.	A man leaves the earth in a rocket ship that makes a round trip to the nearest star which is 4 light years away at speed of 0.8c. How much younger will he be on his return that is twin brother who preferred to stay behind	10	1
b.	A 100 watt sodium lamp radiating its power. Calculate the electric field and magnetic field strength at a distance of 5 m from the lamp.	10	2
c.	Show that the de-Broglie wavelength for a material particle of rest mass m_0 and charge q accelerated from rest through a potential difference V, relativistically is given by: $\lambda = \frac{h}{\sqrt{2 m_0 qv \left(1 + \frac{qv}{2 m_0 c^2}\right)}}$	10	3
d.	Interference fringes are produced by a monochromatic light falling normally on a wedge shaped film whose refractive index is 1.4. The angle of the wedge is 20 second of an arc and the distance between the successive fringes is 0.25cm. Calculate the wavelength of light used.	10	4
e.	A glass clad fiber is made with core glass of refractive index 1.5 and the cladding is doped to give a fractional index difference of 0.0005. Find: (a) The cladding index. (b)The critical internal reflection angle (c) The numerical aperture.	10	5

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SECTION C

3. Attempt any *one* part of the following:

Qno.	Question	Marks	CO
a.	Describe Michelson Morley experiment and explain physical signifance of its negative results.	10	1
b.	Show that the mass of a body depends on its velocity. Deduce an expression for the Variation of mass with velocity.	10	1

4. Attempt any *one* part of the following:

Qno.	Question	Marks	CO
a.	Derive the Maxwell equations in differential form and integral form with physical signifance.	10	2
b.	What is poynting vector? How is the poynting theorem derived from Maxwell equations?	10	2

5. Attempt any *one* part of the following:

Qno.	Question	Marks	CO
a.	What are the conditions and limitations, a wave function must obey? Derive time independent Schrodinger equations.	10	3
b.	Discuss Compton effect and derive an expression for Compton shift with the help of suitable diagram	10	3

6. Attempt any *one* part of the following:

Qno.	Question	Marks	CO
a.	Discuss the phenomenon of interference of light due to thin films and find the condition of maxima and minima. Show that the interference patterns of reflected and transmitted monochromatic source of light are complementary	10	4
b.	Discuss the phenomenon of Fraunhofer diffraction at a single slit and show that the relative intensities of successive maximum are nearly $1:4/9\pi^2:4/25\pi^2:4/49\pi^2$.	10	4

7. Attempt any *one* part of the following:

Qno.	Question	Marks	CO
a.	Analyse and describe the process of spontaneous and stimulated emission of radiation with the help of diagram. Obtain an expression for Einstein's coefficients of spontaneous and stimulated emission of radiation	10	5
b.	Draw a neat diagram of He-Ne laser and describe its method of w How is it superior to a Ruby laser?		

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Printed Pages:02 KAS201

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B. TECH.
(SEM-II) THEORY EXAMINATION 2018-19
PHYSICS

Time: 3 Hours *Total Marks: 100*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a. Explain the negative results of Michelson-Morley experiments.
b. What is length contraction?
c. Define inertial and non-inertial frames.
d. What are massless particles?
e. What is displacement current?
f. What is Poynting theorem?
g. Write the assumptions of Planck's hypothesis
h. Explain the necessity of extended sources.
i. What are the Newton's rings?
j. Define dispersive power of grating.

SECTION B

2. Attempt any *three* of the following: **10x3=30**

a. Drive an expression for time dilation. A clock measures the proper time. With what speed it should move relative to an observer so that it appears to go slow by 30s in 24 hours.

b. Discuss the phenomenon of interference of light due to thin films and find the conditions of maxima and minima. Show that the interference patterns of reflected and transmitted monochromatic light are complementary.

c. What do you understand by 3 and 4 levels LASER? What are the advantages of 3 level over 4 level LASER?

d. What do you understand by an optical fiber and discuss its classification.Calculate the numerical aperture, acceptance angle and the critical angle of the fiber from the following data: μ_1 (core refractive index) = 1.50 and μ_2 (cladding refractive index) =1.45.

e. Derive a suitable expression for continuity equation. Give its physical significance. A 100 watt sodium lamp radiating its power. Calculate the electric field and magnetic field strength at a distance of 5m from the lamp.

SECTION C

3. Attempt any *one* part of the following: **5x2=10**

a. Deduce Einstein's mass-energy relation $E = mc^2$. Give some evidence showing its validity.A particle of rest mass $m_0$moves with speed $\frac{c}{\sqrt{2}}$. Calculat... energy and kinetic energy.

b. Discuss the phenomenon of Fraunhofer's diffraction at a sir... relative intensities of the successive maximum are near...

.....

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4. Attempt any *one* part of the following: **5x2=10**

a. Prove that electromagnetic waves are transverse in nature.For a conducting medium, $\sigma = 5.8 \times 10^6$ Siemens/m and $\varepsilon_r = 1$. Find out the conduction and displacement current densities if the magnitude of electric field intensity E is given by E=150 sin (10^{10} t) Volt/m.

b. Explain the construction and working of Ruby laser.In a Ruby laser, total of Cr^{3+} ions is 2.8×10^{19}. If the laser emits radiation of wavelength 7000Å. Calculate energy of the laser pulse.

5. Attempt any *one* part of the following: **5x2=10**

a. Derive Planck's law of radiation. How does it explain Wien's displacement and Rayleigh-Jeans laws?Calculate the energy of an oscillator of frequency 4.2×10^{12} Hz at 27°C treating it as (a) classical oscillator (b) Planck's oscillator.

b. Deduce four Maxwell's equations in free space. Show how the concept of Maxwell's displacement current leads to the modification of Ampere's law.

6. Attempt any *one* part of the following: **5x2=10**

a. Derive a suitable expression for Momentum and radiated pressure of an EM wave.

b. What is Compton effect? Derive a suitable expression for Compton Shift $(\lambda'-\lambda = \frac{h}{m_o c}(1-\text{Cos}\phi)$. X-rays of wavelength 2Å are scattered from a black body and X rays are scattered at an angle 45°. Calculate Compton shift ($\Delta\lambda$), wavelength of the scattered Photons (λ').

7. Attempt any *one* part of the following: **5x2=10**

a. Derive time-dependent and time-independent Schrodinger's wave equation.

b. What do you understand by grating? Explain its spectra. What particular spectra would be absent if the width of the transparencies and opacities of the grating are equal.Find the angular separation of 5048 Å and 5016Å wavelength in second order spectrum obtained by a plane diffraction grating having 15000 lines per inch.

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Printed Pages: 02

Sub Code: BAS101

Paper Id: 233012

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B. TECH.
(SEM I) THEORY EXAMINATION 2022-23
ENGINEERING PHYSICS

Time: 3 Hours

समय 03 घण्टे

Total Marks: 70

पूर्णांक: 70

Note:

1. Attempt all Sections. If require any missing data; then choose suitably.
2. The question paper may be answered in Hindi Language, English Language or in the mixed language of Hindi and English, as per convenience.

नोट: 1. सभी प्रश्नो का उत्तर दीजिए। किसी प्रश्न में, आवश्यक डेटा का उल्लेख न होने की स्थिति में उपयुक्त डेटा स्वतः मानकर प्रश्न को हल करें।

2. प्रश्नों का उत्तर देने हेतु सुविधानुसार हिन्दी भाषा, अंग्रेजी भाषा अथवा हिंदी एवं अंग्रेजी की मिश्रित भाषा का प्रयोग किया जा सकता है।

SECTION A

1. Attempt *all* questions in brief. **2 x 7 = 14**

निम्न सभी प्रश्नों का संक्षेप मे उत्तर दीजिए।

(a) Write down the Planck's expression (formula) for spectral energy density in Black Body radiation.
कृष्णिका विकिरण में वर्णक्रमीय ऊर्जा घनत्व के लिए प्लैंक का सूत्र लिखिए।

(b) What do you understand by phase velocity and group velocity of waves?
तरंगो के फेज वेग एवं समूह वेग से क्या अभिप्राय है?

(c) Write down the expression for Continuity Equation in differential form.
सतत समीकरण के व्यंजक को अवकल रूप में लिखें।

(d) What do you understand by coherent sources?
सुसंगत स्रोतों से आप क्या समझते हैं?

(e) Define the population inversion in LASER.
LASER में जनसंख्या व्युत्क्रमण को परिभाषित कीजिए।

(f) Write down any two applications of the Nano materials.
नैनो पदार्थों के कोई दो अनुप्रयोग लिखिए।

(g) State any two differences between single mode and multi-mode step index fiber.
सिंगल मोड और मल्टी-मोड स्टेप इंडेक्स फाइबर के बीच कोई दो अंतर बताएं।

SECTION B

2. Attempt any *three* of the following:

निम्न में से किसी तीन प्रश्नों का उत्तर दीजिए।

(a) Explain the physical significance of wave function giv
मैक्स बोर्न द्वारा दिए गए तरंग क्रिया के भौतिक महत्व की व

(b) What do you understand by Displacement current and
विस्थापन धारा और स्किन डेप्थ (skin depth) से आप क्या
understand by the phenomenon of

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फ्रानहॉफर विवर्तन की परिघटना से आप क्या समझते है ? अधिकतम सिद्धांत की तीव्रता की तुलना में उत्तरोत्तर द्वितीयक उच्चिष्ठ की तीव्रता का अनुपात ज्ञात कीजिए।

(d) Describe briefly any three applications of optical fiber.
ऑप्टिकल फाइबर के किन्हीं तीन अनुप्रयोगों का संक्षेप में वर्णन कीजिए।

(e) Explain Type I and Type II superconductors briefly.
टाइप I और टाइप II सुपरकंडक्टर्स को संक्षेप में समझाइए।

SECTION C

3. Attempt any *one* part of the following: **7 x 1 = 7**

निम्न में से किसी एक प्रश्न का उत्तर दीजिए।

(a) Derive an expression for Compton wavelength shift ($\Delta\lambda$) for a Compton scattering experiment. The wavelength of an X-ray photon is doubled on being scattered through 90° with a carbon block in a Compton Experiment. Find out the wavelength of the incident photon. (Electron mass $m_e = 9.1 \times 10^{-3}\ kg$, Planck's constant $h = 6.63 \times 10^{-34} m^2 kg/s$, speed of light $c = 3.0 \times 10^8\ m/s$).
कॉम्प्टन स्कैटरिंग प्रयोग में कॉम्पटन वेवलेंथ शिफ्ट ($\Delta\lambda$) के लिए व्यंजक व्युत्पन्न कीजिए। एक कॉम्पटन प्रयोग में कार्बन ब्लॉक के साथ 90° के माध्यम से बिखरने पर एक एक्स-रे फोटॉन की तरंग दैर्ध्य दोगुनी हो जाती है। आपतित फोटॉन की तरंगदैर्ध्य ज्ञात कीजिए। (इलेक्ट्रॉन द्रव्यमान $m_e=9.1\times10^{-31}$ kg, प्लैंक का नियतांक $h= 6.63\times10^{-34}$ m^2 kg/s, प्रकाश की गति $c=3.0\times10^8$ m/s)

(b) Derive time independent Schrodinger wave equation. Write down the time independent Schrodinger equation for a particle in one-dimensional box (infinitely deep potential well) and find out energy eigenvalues (energy levels) and the corresponding energy eigenfunctions (normalized wavefunctions) of the particle.

समय स्वतंत्र श्रोडिंगर तरंग समीकरण को व्युत्पन्न कीजिए। एक-आयामी बॉक्स (अनंत रूप से गहरी क्षमता वाले कुएं) में एक कण के लिए समय स्वतंत्र श्रोडिंगर समीकरण लिखें और कण के ऊर्जा आइजेन मानों (ऊर्जा स्तर) और संबंधित ऊर्जा आइजेन फंक्शन (सामान्यीकृत वेवफंक्शन) को ज्ञात कीजिए।

4. Attempt any *one* part of the following: **7 x 1 = 7**

निम्न में से किसी एक प्रश्न का उत्तर दीजिए।

(a) Derive equation for simple plain electromagnetic wave starting from Maxwell's equations in free space. Show that the electromagnetic wave in free space is transverse in nature.
मुक्त अंतरिक्ष में मैक्सवेल के समीकरणों से प्रारंभ करते हुए सरल समतल वैद्युतचुंबकीय तरंग के लिए समीकरण व्युत्पन्न कीजिए। दिखाएँ कि मुक्त अंतरिक्ष में विद्युत चुम्बकीय तरंग की प्रकृति अनुप्रस्थ होती है।

(b) Prove the Poynting theorem in electrodynamics and explain the physical significance of each of the term appearing in
theorem.
विद्युतगतिकी में पोयंटिंग प्रमेय को सिद्ध कीजिए और
होने वाले प्रत्येक पद के भौतिक महत्व की व्याख्या कीजि

5. Attempt any *one* part of the following:

निम्न में से किसी एक प्रश्न का उत्तर दीजिए।

(a) (i) Describe the phenomenon of interference in t
due to reflected light and write down the conditions for constructive and

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परिघटना का वर्णन कीजिए तथा रचनात्मक तथा विनाशी व्यतिकरण के लिए शर्तों को लिखिए।

(ii) A light source of wavelength 6000 Å is used along with plano-convex lens with radius of curvature equal to100cm in a Newton's ring arrangement. Find out the diameter of the 15th dark ring.
6000 Å तरंग दैर्ध्य का एक प्रकाश स्रोत, न्यूटन के वलय व्यवस्था में 100 सेमी के बराबर की वक्रता त्रिज्या के समतलीय-उत्तल लेंस का प्रयोग किया जाता है। 15वें अदीप्त वलय का व्यास ज्ञात कीजिए।

(b) Explain briefly the Rayleigh criterion of resolution. Discuss the resolving power of plane transmission grating and find the relation between resolving and dispersive power of the grating.
विभेदन की रैले मानदंड को संक्षेप में समझाइए। समतल संचरण ग्रेटिंग की विभेदन क्षमता की विवेचना कीजिए और ग्रेटिंग की विभेदन क्षमता और वर्ण-विक्षेपण क्षमता के बीच संबंध स्थापित कीजिए।

6. **Attempt any *one* part of the following:** **7 x 1 = 7**

निम्न में से किसी एक प्रश्न का उत्तर दीजिए।

(a) (i) Find out the expressions for acceptance angle and numerical aperture of an optical fiber in terms of the refractive index of core and cladding.
कोर और क्लैडिंग के अपवर्तक सूचकांक के संदर्भ में एक ऑप्टिकल फाइबर के स्वीकृति कोण और संख्यात्मक एपर्चर के लिए व्यंजक ज्ञात कीजिए।

(ii) Explain briefly the attenuation in optical fiber.
ऑप्टिकल फाइबर में क्षीणन को संक्षेप में समझाइए।

(b) Describe the absorption, spontaneous emission, stimulated emission of radiation by matter and derive the relation between Einstein's Coefficients related to three phenomena.
पदार्थ द्वारा विकिरण के अवशोषण, स्वतः स्फूर्त उत्सर्जन, तथा उत्प्रेरित उत्सर्जन का वर्णन करें और तीनों परिघटनाओं से संबंधित आइंस्टीन के गुणांकों के बीच संबंध स्थापित करें।

7. **Attempt any *one* part of the following:** **7 x 1 = 7**

निम्न में से किसी एक प्रश्न का उत्तर दीजिए।

(a) Explain the Meissner effect and persistent current in superconductivity.
अतिचालकता के संदर्भ में मीस्नर प्रभाव और दीर्घस्थायी धारा की व्याख्या कीजिए।

(b) What are Nano materials? Explain briefly the ba
Quantum wires and Quantum well.
नैनो पदार्थ किसे कहते हैं? क्वांटम डॉट्स, क्वांटम व
अवधारणाओं को संक्षेप में समझाइए।

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Printed Pages:02

Sub Code: KAS101T

Paper Id: 233026

Roll No.

B. TECH.
(SEM I) THEORY EXAMINATION 2022-23
ENGINEERING PHYSICS

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

(a) What are the negative results of the Michelson-Morley experiment?
(b) What are the massless particles?
(c) What do you understand by displacement current?
(d) Define the Poynting vector.
(e) What do you understand by a black body?
(f) State Wein's displacement law.
(g) What are the coherent sources?
(h) What is Rayleigh's criterion of resolution?
(i) Define population inversion.
(j) What is the dispersion in optical fibers?

SECTION B

2. Attempt any *three* of the following: **10x3=30**

(a) Show that momentum of a particle (p) of rest mass (m_o) and energy (E) is given by $E^2 = m_o^2c^4 + p^2c^2$.
(b) If the magnitude of H in a plane wave is 1 amp/meter, find the magnitude of E for a plane wave in free space. (Where $\mu_0 = 4\pi \times 10^{-7}$ Weber/amp-m and $\varepsilon_0 = 8.85 \times 10^{-12}$ C/N-m^2).
(c) Calculate the de-Broglie wavelength associated with a proton moving with a velocity equal to $1/20^{th}$ of the velocity of light.
(d) Calculate the wavelength of light whose first diffraction maximum in the diffraction pattern due to a single slit falls at 30° and coincides with the first minimum of red light of wavelength 6500Å.
(e) Calculate the numerical aperture, acceptance angle, and critical angle of the fiber from the following data: μ_1 (core refractive index) = 1.50 and μ_2 (cladding refractive index) = 1.45.

SECTION C

3. Attempt any *one* part of the following: **10x1=10**

(a) Derive the Lorentz Transformation equations and Transformation approaches to Galilean Transformation whe
(b) Derive a suitable expression for time dilation and show tha effect.

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4. Attempt any *one* part of the following: 10x1=10

(a) Derive the expression for the Poynting theorem in electromagnetic waves.

(b) Show that electromagnetic waves are transverse in nature.

5. Attempt any *one* part of the following: 10x1=10

(a) Derive the time-independent Schrodinger equation, for matter waves.

(b) Derive a suitable expression for Planck's radiation law.

6. Attempt any *one* part of the following: 10x1=10

(a) What are Newton's rings? How they are formed? Derive the expressions for the diameter of bright and dark rings in reflected monochromatic light.

(b) Derive the conditions of principal maxima and minima for the diffraction due to a grating.

7. Attempt any *one* part of the following: 10x1=10

(a) What is an optical fiber? Derive the expression for the numerical aperture, acceptance angle, and critical angle of an optical fiber.

(b) Discuss the construction and working of the He-Ne laser and give its advantages over the Ruby laser.

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6.5.3 ***Quality Assurance initiatives of the institution include:***

1. **Regular meeting of Internal Quality Assurance Cell (IQAC); feedback collected, analyzed and used for improvements.**
2. **Collaborative quality initiatives with other institution(s)**
3. **Participation in NIRF**
4. **Any other quality recognized by state, national or international agencies (ISO Certification, NBA)**

Response: Any three of the above

Regular meeting of Internal Quality Assurance Cell (IQAC); feedback collected, analyzed and used for improvements.

Institution has assigned the role assessing status of compliance to all requirements of external agencies to internal teams deputed in each department. Each team prepares the status of compliance report and submits to Dean Special Projects.

The institution regularly collects student's feedback and evaluates the teaching ability of faculty and advices as their shortcomings.

- Head of the department separately evaluates the performance of the faculty.
- Performance of the students is continuously evaluated by the dept.
- Individual students counseling by class –in-charges and HoD.
- Detailed subject-wise lecture notes are required to be prepared by each faculty members.
- Lab manuals are prepared by the faculty members and made available to the student.

The institution has always sincerely and seriously ensured to communicate its quality assurance policies, mechanism and outcomes to the various internal stakeholders at regular intervals. The institution is committed to provide state of the art facilities and cutting-edge technologies to its students. The dedicated services rendered by the management, faculty, staff and students will make this institution a strong learning and resource centre.

Participation in NIRF

The National Institutional Ranking Framework (NIRF) was approved by the MHRD and launched by Honourable Minister of Human Resource Development in year 2015.

This framework outlines a methodology to rank institutions across the country. The methodology draws from the overall recommendations broad understanding arrived at by a core committee set up by MHRD, to identify the broad parameters for ranking various universities and institutions. The parameters broadly cover "Teaching, Learning and Resources," "Research and Professional Practices," "Graduation Outcomes," "Outreach and Inclusivity," and "Perception".

Our college is regularly participating in this ranking since 2015.

Any other quality recognized by state, national or international agencies (ISO Certification, NBA)

Accreditation is a process of quality assurance and improvement, whereby a programme in an approved Institution is critically appraised to verify that the Institution or the programme continues to meet and/or exceed the Norms and Standards prescribed by regulator from time to time. It is a kind of recognition which indicates that a programme or Institution fulfills certain standards. Our College is accredited by NBA since year 2006. Presently our 05 Engineering branches viz. CSE, ECE, IT, ME and EN are accredited. The validity for the accreditation of these branches are w.e.f 01/07/2022 to 30/06/2025.

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