Feedback from students

Timestamp	Q1	Q2	Q3	Q4	Q5
PPH104-Reflections-II		**Unit II - Fourier series and Fourier Transforms**			
Queries	**Description**				
Q1	In few sentences please describe your learning experience of the last unit (Fourier series and Fourier Transforms)				
Q2	Did you have any special moment when you felt joy of learning during any lecture or tutorial sessions? Please describe in 2/3 sentences.				
Q3	How would you rate your teacher based on his/her motivation, delivery, organisation during the last unit?				
Q4	How would you rate yourself based on your motivation, effort, likeness towards the learning during the last unit?				
Q5	Can you think of any way that the teaching and over all learning experience can be improved?				
11/13/2017 1	Quite good alot easier than bessel one	Yes many the naming of fourier itself	4	4	Some notes should be provided in order to make it easier for the students to revise
11/13/2017 1	Quite good alot easier than bessel one	Yes many the naming of fourier itself	4	4	Some notes should be provided in order to make it easier for the students to revise
11/13/2017 1	The unit has been very good. Teacher worked a lot hard. Thank you.	Most of the lecture were such.	5	3	There is no problem with the teacher. The problem is with the curriculum.
11/13/2017 1	I didn't get it much	When you explain things with examples.	3	3	Give us more and more examples
11/13/2017 1	It was easy to understand		4	3	Yes it can be improved
11/13/2017 1	I was excellent but i have confusion about P series convergence .	I can only say that i totaly forget about time in your lecture!!!!	5	5	thats sufficient for me.
11/13/2017 1	Avg	No	2	2	Please provide us notess We are not getting the complete study material from arf ken Otherwise plz recommend the other books We all have written this in previous feedback also But still the sys is same
11/13/2017 1	It was gud	Yes solving ans taking tym but solving it own self to	3	3	
11/13/2017 1	Fourier is quite easy bt some complications also arise when we solve some questions	No	5	3	Should provide proper notes

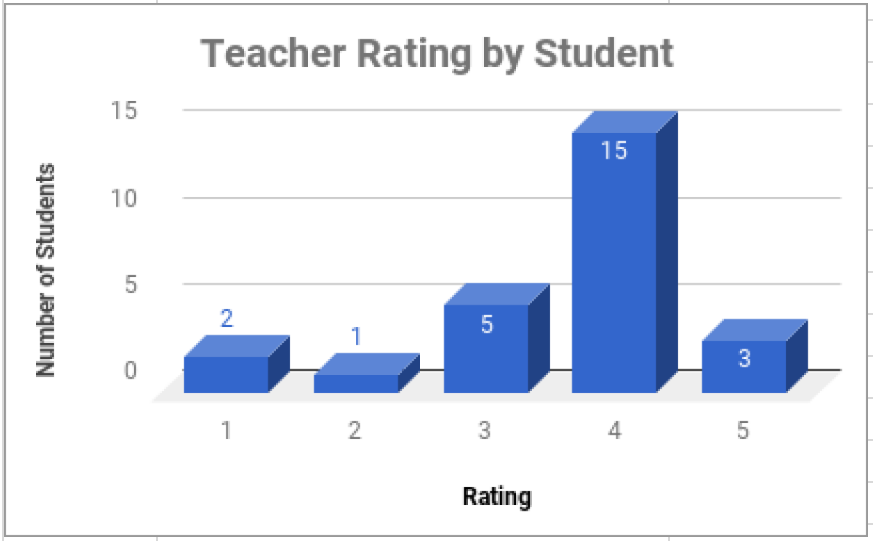
Timestamp	Q1	Q2	Q3	Q4	Q5
11/13/2017 1	In this unit my experience was good . The unit was intersting .	Yes. Solving numericals by my own was a great joy in tutorials.	4	3	The theoretical things should also be made interesting as numerical things.
11/13/2017 1	Its easy and understandable i cant face too much difficulty in that chapter its too good	Yess i feel joy during the fourier tranformation	4	4	You should provide proper notes and previous question papers should be discussed in class
11/13/2017 1	Learnt why exactly we need it.	How a square or traingular wave can be represented in a simple sin and cosine form. Also how it makes things easy was a good learning point	4	4	If atleast some of it be coded in fortran or any language or these code should be part of curriculum, it will help to understand the mathamatics more realastic.
11/13/2017 1	it was ok	yes.. this time i found so muvh interesting things	4	3	no. he put all his efforts.. and if there will be any improvement then it must be that take only one hour to teach.. more than that make class boring
11/13/2017 1	I could understand this part fairly well and I was able to comprehend things	Both tutorials and lectures were quite good. Especially drawing curves of various functions, where the function would positive or negative	4	3	No I don't think so that any improvement is needed although I feel that improvment is needed from my side.
11/13/2017 1	Whatever taught in class was good. But question in tut sheet are little confusing	Recent tut when we solved area problem	3	3	Discussion about how questions will b asked in exams and suggestions regarding self study
11/13/2017 1	Concepts were explained but lack of practice of problems.	Yes. I felt more enthusiastic and related during complex variables lecture and tutorials. Fourier transforms were quite boring.	4	3	By doing more problems in tutorial. Once the students complete one tut sheet, then only the next should be given.
11/13/2017 1	It was interesting as I had done this before. But I got good understanding now as compare as Sir had explained this graphically too.	Yea I enjoy when sir asked me to go to board and I solved question with help of Sir.	4	3	Yea I think sir should use more examples to explain theoretical terms and graphical method is more effective for better understanding.
11/13/2017 1	Actually this unit is easy as compare to earlier so that's good and i learnt it	Don't remember	4	4	Notes should be provided and previous question papers also should be discussed so that we can know the pattern of question paper and division of unit's in question paper should be taught in class so that student can prepare according to that without any trouble

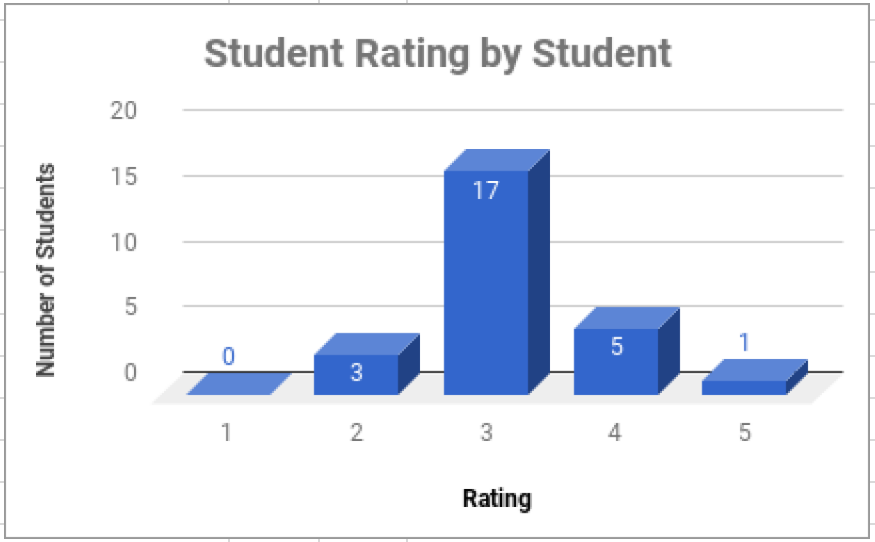
Timestamp	Q1	Q2	Q3	Q4	Q5
11/13/2017 1	it was so bad i was not able to get something new about fourier series	no	1	3	notes should be provided and refer any other author's book because i felt difficulty while studying from arfkan language was too tough..
11/13/2017 1	It was good but i would be more happy if you ll explain the things clearly and completely. Somewhere i felt that i am not understanding the thing properly.	I like the whole lecture when you ll give us the examples. Things become easy for us.	3	2	Yeah by providing us proper study material.
11/13/2017 1	It was good. Bt when I start doing my tut sheet . I can't do it by myself. Many problem arises like. I guess my concepts are not clear ... As they have to b. ..I think that there should b answer keys given to us.	No□□ it's very difficult topic which seems to b . Bt I know topic is easy nd u give Ur best fr us.. BT may b we can't cop up wd u. Try to make class more interesting so dat we will njoy Ur lctre nd DNt bunk□	3	3	Try to give us good example nd please prepare Ur lecture. So that tym wastageis less
11/13/2017 1	It was good but should elaborate more .	Yes, sometimes	4	3	Elaborate more.
11/13/2017 1	Fourier series are very difficult than other chapters	I felt joy of learning during lecture or tut sessions when I understood every thing regarding present topic and when questions solved	4	3	By practice and proper understanding
11/13/2017 1	U taught this very well..bt I learnt less bcz m weak in maths	I njoyed lecture of cauchy theorem..	4	3	If I give more tym to learning at home also
11/13/2017 1	U taught this very well..bt I learnt less bcz m weak in maths	I njoyed lecture of cauchy theorem..	4	3	If I give more tym to learning at home also
11/15/2017 9	This unit is easy but I don't understand some topics	No	1	2	Yes it can be improved Plz improve it

Q3	How would you rate your teacher based on his/her motivation, delivery, organisation during the last unit?
Q4	How would you rate yourself based on your motivation, effort, likeness towards the learning during the last unit?

Query	Rating	No of Students
Q3	1	2
	2	1
	3	5
	4	15
	5	3
Query	**Rating**	**No of Students**
	1	0

Timestamp	Q1	Q2	Q3	Q4	Q5
Q4	2	3			
	3	17			
	4	5			
	5	1			





Feedback from students

Timestamp	Q1	Q2	Q3	Q4	Q5
PPH104-Reflections-I		**Unit - Differential Equations and Special Functions**			

Queries	Description
Q1	In few sentences please describe your learning experience of the last unit (Differential Equations and Special Functions)
Q2	Did you have any special moment when you felt joy of learning during any lecture or tutorial sessions? Please describe in 2/3 sentences.
Q3	How would you rate your teacher based on his/her motivation, delivery, organisation during the last unit?
Q4	How would you rate yourself based on your motivation, effort, likeness towards the learning during the last unit?
Q5	Can you think of any way that the teaching and over all learning experience can be improved?

9/14/2017 16:1	The learning experience has been overall good. But overall hectic schedule and too much burden because of pending syllabus hampers learning.	When I was able to recall what I have learnt and also able to apply what I already know.	4	3	Schedule should be less strict as it causes burn out and studies become burden. I havent been able to do my hobbies since a long time.
9/14/2017 16:1	50 50 % but concept clear hai..	Story and sometimes dancing moments by sir	4	4	By discussing more problems on several topics and sometimes communication b/w us how to increase our accuracy towards solving the question
9/14/2017 16:1	We did not understand it earlier. But now I m understanding this unit. Pls explain the physical phenomenon attached with every unit so that we can understand it easily	When you teach us the chapter with stories.we understand it very well.	4	3	Teach us from the very basic like binomial theorem...tell us how to expand it first and then start teaching. Otherwise your teaching is excellent sir.
9/14/2017 16:1	Differential equations were ok, but in the special function some topics went over the head, topics were going fast .	Yes, in tutorial classes when we solved some questions.	3	2	Please provide us notes or ppts and before the start of lecture give a brief overview of the topic going in the class.
9/14/2017 16:1	Sir, we came to know about the derivations . We learnt how to derive the expressions but we didn't learn how to apply it in physics . We dont know how to solve physics phenomenons using these special functions.	The joyful moment ... dont know	4	4	Sir as this is our first time here. We dont know how u will set exam . We want u to tell us the exam pattern and type of questions u will set there so that during preparation we have a idea .
9/14/2017 16:1	Differential equations would have been given more time .We are not so clear about the topics and Rest of the part is fairly clear .But it is more clear from indian author's book than the referred arfken book	Yaa sure .Sir has a great sense of humour and he tells us humorous stories making lecture more fun .	3	2	Yes it can be made more simple and it would be better if teacher solves the question himself first and then ask us to do same type of questions then.

Timestamp	Q1	Q2	Q3	Q4	Q5
9/14/2017 16:1	1.We didn't practise any question ...neither about all methods in are syllabus...suggestion::should start from easy to difficult question... Should guide how to prepare for this exam	It feels good that our teacher coordinates with us this much... Teachers approach is good Sum time we get little puzzled too bt our teacher actually look into d mTter which is good	3	2	Start with d simlest way so that everyone get familier with what we are going to study. Try to teach in easy way n do discuss about paper...whats imp
9/14/2017 16:1	It was very confusing as I am unable to relate the mathematics with physics. I understand everything in class but I am unable to do it myself.	Yea I enjoy the way, by which sir relate topics. I like the experiences that sir share with us.	3	3	Yea sir should generalize and clarify the topic before we start lecture. And sir should tell how we are relating mathematics with physics.
9/14/2017 16:1	The experience was good I learn so many new things.. nd my many doubts of BSC. Are also cleared when I do nd try questions my self bt sometimes I want that plz mention the topic name and tell any next topic we will do on next lctre. So that we can go through it.	Yeah. When u tell our mistakes and tell when and where we done wrong .. and tell us stories backgrd. Of that topic eg. In Fourier series	4	3	Yeah u can provide us hand written notes or ppts.
9/14/2017 16:1	Special function was quite understoodable bt i didn't get the differential equation actually in the starting kuch smjh hi nhi aa rha tha kya topic h kaha se start kiya kaha khtm hua ...it probably because i didn't attend the 1 lecture	Joy is when i solve the question bt it happens only few times	4	3	Teacher should provide proper notes to all the students and all the teachers should aware about the problems of student and guide them in proper direction whether it is in syllabus or out of the syllabus
9/14/2017 16:1	It was good i hav learnt so many new things but there are so many doubts.. books are not very like or easy from where we do self study.. better to provide notes or ppts.	Sir's nature of making lectures more interesting by telling stories and expressions	3	3	Provide notes rather then books that will be more helpful for us and try to understand us our doubts and problems
9/14/2017 16:1	It was very good	Not yet	4	3	
9/14/2017 16:1	we wnt to learn more & we wnt to vast our knowledge .....overall experience was gd....	ya!!!! i hve wen u told us the story of some boy from other university ... hahahaha wht a gd story wen u told us tht guy said his teacher ,"a piece of *******""" ... the expression was supr cool .... amazing...	4	3	hmmm... some better way can b taken as such lyk b slow & get us more info regarding the topic. overall sir u r amazing.... its been cool to work wth u .....
9/14/2017 16:1	In starting I cannot understand anything but after some time derivations or formulas smaj Anne lgee thoda or interest aaya topics me specially in special functions : Bessel functions	I feel so happy when only one derivation of topic Legendre solved by me and half of derivation was correct	3	2	Plzzz explain all facts specially some formulas or facts use during any derivation of topics
9/14/2017 16:1	It's was ok...bcz i hate mathematics....mtlb m koshish krti by smjne ki...bt i think my base for differential is not clear..due to which m facing problems in this...or m not doing practice.....bcz i really fear from this subjct	Actually oll lectures i have attended were good....sometimes I also feel bored when I don't get anything..bt sometimes I don't get...what u said	4	3	One extra class should be provided to clear oll d bases.....notes should be provided.as we r not getting that which book we should.... arfken looks difficult fr us....

Timestamp	Q1	Q2	Q3	Q4	Q5
9/14/2017 16:2	I found dis chaptr easy(concepts wise) but while solving the equation it is vry challenging for me... but aftr practice 3 4 times it will be easg for me...	Yaa..when i solved the answrs	2	5	First of all, sir u should tell the students the chaptr name den d topic name den from where to start ,where to end, nd plz dont force us to follow the book Arfken it is not of our level we are not einstein..we are freshers nd we dont know to tackle it directly moreovr evrythng in d book is directly solve so i request to let the students learn from anybook knowledg matters... Ayways...sir i appreciate you..u have much more experience dan us but d diffrnc is we are not expert yet...thankyou
9/14/2017 16:2	Always wanted to study afken, but could never understand it by myself. But now i can atleast understand the 30-40% of the chapter we did in last unit. Its motivating on itself that i can atleast understand the question of excersize if not the solution. Its been a wonderfull for now.	I gets really afraid whenever there us summation but not with all these summation i m in between my fear and yet i m still surviving.	5	3	We can atleast visualize some of the equation like vibrating membrane and how bessel equation gives its modes. That way we may be more familiar and more trustworthy to theoretical understanding and practical implementation.
9/14/2017 16:2	We learnt effectively as u made us practice in class but still not able to understand where the chapter starts n it ends and the topics disturbed inbetween	Yes the stories in the class through them we r not bored n tried doing the equation more effectively	4	3	Yes may be by giving more examples after each derivation or I can say practicing more examples
9/14/2017 16:2	It was good but not much good because its our starting experience so I face some difficulties related to that subject	Yes i felt joy of learning during lectures of legendre polynomial and hermite functions	4	3	Yes, teaching and over all learning experience can be improved by providing some notes to students so that student can get some idea from there and make their own notes
9/14/2017 16:2	it was best during the lectures. You taught us in a very amazing way. you taught every article in such a way that i unferstood everthing eve minor details.	there were a lot of moments when i felt it was was not only a class but also a class where i learnt how to study freely . and make mind tension free.	5	5	The way teaching is awesome. I never met such a teacher in my life. from there good and sometime funny behaviour i learnt a great deal. i understamd everything what u taught. i think thats enough.
9/14/2017 16:2	I have attended all the lectures. I even understood the concepts to greater extent but somehow I lacked somewhere in learning differential equations. But special function's lectures as well as tutorials were easily understood and am satisfied from the teaching.	Yes! I enjoyed learning special functions. Tutorial classes were always interesting and full of enthusiasm. We solved the questions as per the topics. Sir has always tried to teach us in the best way we can understand.	4	3	Notes should be provided as per the sequence of the topics, so that we can relate the matter easily while studying.
9/14/2017 16:2	It was good , actually it was our starting that why i face some problem but after giving some time to this course i know I'll do definitely better □ □	I really enjoyed some time during class time as when sir relate the topic with real life example , I think thats the good way to learn ☺☺	4	3	Yes , I think teaching and learning ways should be improved by providing some notes to students so that students can make their own notes from providing teachers notes ☺

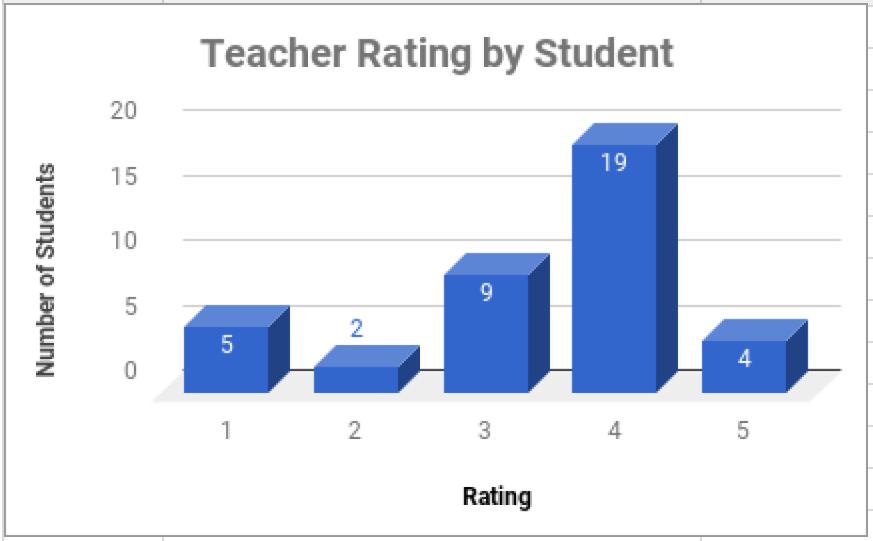
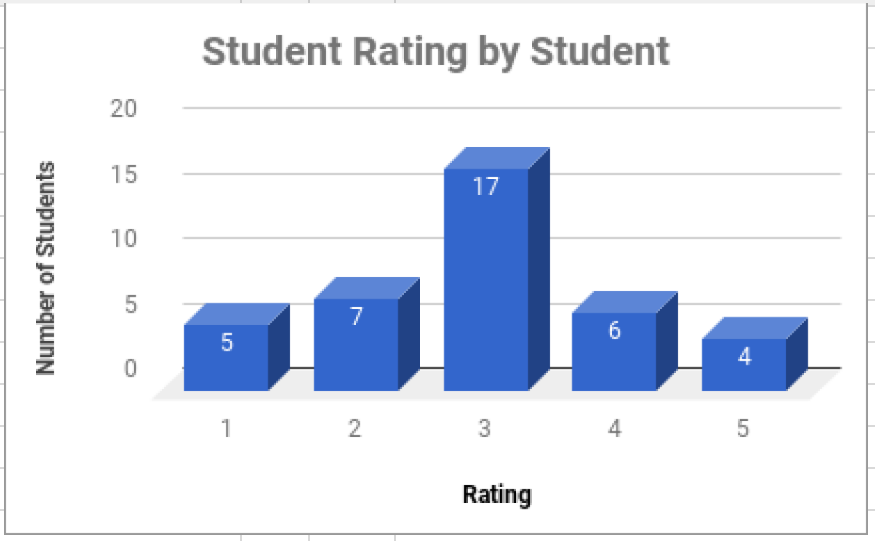
Timestamp	Q1	Q2	Q3	Q4	Q5
9/14/2017 16:2	We get to know much more about this unit.. its quite interesting and with each topic it enhances our knowledge and being a physics student it is also a quick revision of mathematics	Tutorial session actually improves a lot of our knowledge. It is not only tutorial session bt also a problem solving session	4	2	It can be improved if in tut classes more creative ideas of studying and instead of including those theorem .. techniques can also be used along with it..
9/14/2017 16:2	felt very different, never had a class before in which the student solves most of the questions only with the hints .Boht dimag lgana padhta hai class. Hindi mein bole toh MAZEDAAR CLASS . I Always enjoy the class no matter kuch samaj aye ya na	yes when you told a story about a piece of dash(law class) and your first class ah i remember the way you made fun of your name (i was amazed)	4	4	yes it can be improved if step by step questions are solved on the board Moreover notes must be provided and pattern of question paper should be provided and practice papers should be solved in the class.
9/14/2017 16:2	I did not understand some parts in DF but I'm able to understand some part of Special function.	I enjoyed learning this week only because I was able to understand .	3	4	Topics like LF , bessel function,hermite function and the last topics fouriers series - please explain from basic
9/14/2017 16:2	I was very excited during first three lectures but later on it was difficult for me to do the calculations. I am usually puzzled from where should i begin	Yes , when we are taught in a different way using inspirational talks.	3	2	Notes should be provided for the convenience of the students
9/14/2017 16:2	Diff eauation is a interesting topic to learn but difficult to solve but if the question r easily solved at that particular period its quite interesting and special function is also quite interesting & its topic related to phy r also quite interesting when i get to know but quite difficult	Yes one day there was a scene of hollywood movie picturised by sir that was quite interesting	4	3	Sir u should provide proper notes and try to explain the physical phenomenon attached with that question or unit . Otherwise you teach in a different way and i like your way of teaching
9/14/2017 16:2	Not even a single concept were cleared, we forget all the basic knowledge about maths, it was really a very bad experience	first day of class the course	1	1	By providing proper notes that based on topic and some special and important questions or sum are given in a sheet.
9/14/2017 16:2	Not even a single concept was clear. It was really a very bad experience. All of our class in getting difficulty in understanding the concepts . No notes are provided. We dont have any preparation for MST of this particular subject only.	Only the first day of lect was good that was also due to the excitement to learn new things or getting the admission,but after that not even a single lect was found interesting	1	1	Notes of that particular topic should be provided . And books which can make our concept morr clear should be recommended . We are getting difficulty in clearing the concept from arf ken
9/14/2017 16:2	Sir I am unable to implement equation in physics	Well actually don't know but I enjoy your class	4	4	Yes it can be improved
9/14/2017 16:2	not even a single concept was clear ...i forgot all the basic knowledge instead of getting more...i m facing difficulty in preparing for the MSTs	on very first day of ur class.. we enjoyed a lot after that all ruin..	1	1	notes should be provided and some special and important questions should b discussed
9/14/2017 16:2	Sir,I know about diffential equation and I m interested to solve this equation.but I don't know how to implement in Physics		4	4	Sir plz explain the details
9/14/2017 16:2		i felt joy every time because this was all new to me.i enjoyed	4	3	

Timestamp	Q1	Q2	Q3	Q4	Q5
9/14/2017 16:2	Differential equation is interesting topic and we are already familiar with Differentitial. Equations in b. Sc Bt in M. Sc we read differential equations and my personal experience is very nice for mathematical physics bc'z daily after college I read arfken book for some time	Yes I enjoyed the lecture of mathematical physics	5	5	No
9/14/2017 18:2	not even a single concept was clear ...i forgot all the basic knowledge instead of getting more...i m facing difficulty in preparing for the MSTs	on very first day of ur class.. we enjoyed a lot after that all ruin..	1	1	notes should be provided and some special and important questions should b discussed
9/14/2017 21:5		Actually so much difficulties faced by me when I joined the college Bt now so much improved and am happy Bc'z I always tries to experising something new every moment from teachers and every teacher for me like god and my teachers are very experienced and good	5	5	No

Q3	How would you rate your teacher based on his/her motivation, delivery, organisation during the last unit?
Q4	How would you rate yourself based on your motivation, effort, likeness towards the learning during the last unit?

Query	Rating	No of Students
Q3	1	5
	2	2
	3	9
	4	19
	5	4

Query	Rating	No of Students
Q4	1	5
	2	7
	3	17
	4	6
	5	4

Timestamp	Q1	Q2	Q3	Q4	Q5
					

Feedback from teachers

SCHOOL OF PHYSICS & MATERIALS SCIENCE

Dated: ~~9.9.2013~~ 30-10-2013

NOTICE

Faculty members of SPMS are requested to attend an urgent meeting on ~~9.9.2013~~ 30-10-13 at 3.30 PM in the office of undersigned.

S.No.	Name of Faculty Member	Signature
1	Dr. K.K. Raina	Could not attend
2	Dr. N.K. Verma	
3	Dr. O.P. Pandey	On leave
4	Dr. Kulvir Singh	
5	Dr. Manoj Kumar Sharma	
6	Dr. Suneel Kumar	
7	Dr. Puneet Sharma	
8	Dr. B.N. Chudasama	
9	Dr. S.D. Tiwari	
10	Dr. D.P. Singh	
11	Dr. Alka Upadhyay	
12	Dr. Loveleen Kaur	
13	Dr. Poonam Uniyal	
14	Dr. S. Jana	
15	Dr. B.C. Mohanty	
16	Dr. Amritendu Roy	

Head, 30/10/13
SPMS

Discussed M.Sc. and M.Tech. Syllabi for 1st year 2013-14. Some modifications have been suggested by faculty members ~~specially~~ particularly in Nanomaterials, particle physics, electronics. They also proposed six ~~more~~ week training with some credits in both the courses. Syllabii for B.Tech will be discussed on 12/11/13.

30/10/13

Feedback from teachers and external members (Academia and Industry)

14-5-15

SCHOOL OF PHYSICS & MATERIALS SCIENCE

Ref. No. TU/SPMS/
Dated : May 11, 2015

MINUTES OF THE MEETING OF BOARD OF STUDIES OF THE SCHOOL OF PHYISCS & MATERIALS SCIENCE (SPMS) HELD ON MAY 11, 2015 AT 9.30 A.M. IN THE SEMINAR HALL OF SPMS.

The following were present:

1	Dr. Manoj Kr. Sharma	Chairman & Head
2	Dr. N.K. Verma	Senior Professor
3	Dr. O.P. Pandey	Senior Professor
4	Dr. Kulvir Singh	Professor
5	Dr. Puneet Sharma	Associate Professor
6	Dr. Alka Upadhyay	Associate Professor
7	Dr. B.N. Chudasama	Assistant Professor
8	Ms. Loveleen K. Brar	Assistant Professor
9	Dr. Susheel Mittal	Senior Professor (Cognate Area)
10	Dr. Amitabh Verma	Chief Technical Officer (Outside expert from Industry)
11	Dr. Ratnamala Chatterjee	Professor (Outside expert)

A meeting was held to review two undergraduate subjects (Applied Physics and Engineering Materials), five Engineering Physics (Minor) courses, M.Tech. & Ph.D. entrance test syllabi of SPMS. The B.Tech. (Metallurgical and Materials Engineering) scheme was discussed and finally the postgraduate courses (M.Sc. Physics/M.Tech. Metallurgical & Materials Engineering) were reviewed in reference to 42/40 lecture scheme being implemented from July 2015 onwards.

Board of Studies recommends

1. Scheme and syllabi of postgraduate courses (M.Sc. Physics/M.Tech. Metallurgical & Materials Engineering), Scheme of Undergraduate course B.Tech. (Metallurgical and Materials Engineering).
2. The undergraduate subjects (Applied Physics and Engineering Materials), five minor Engineering Physics and M.Tech. & Ph.D. entrance test syllabi of SPMS.

Meeting ended with a vote of thanks to the chair.

(MANOJ KR. SHARMA) (N.K. VERMA) (O.P. PANDEY) (KULVIR SINGH)

(PUNEET SHARMA) (ALKA UPADHYAY) (B.N. CHUDASAMA) (LOVELEEN K. BRAR)

(SUSHEEL MITTAL) (AMITABH VERMA) (RATNAMALA CHATTERJEE)

Feedback from teachers and outside experts

MINUTES OF THE MEETING OF BOARD OF STUDIES OF THE SCHOOL OF PHYISCS & MATERIALS SCIENCE (SPMS) HELD ON APRIL 20, 2016 AT 10.00 A.M. IN THE SEMINAR HALL OF SPMS.

The following were present:

1.	Dr. Manoj K. Sharma	Chairman & Head
2.	Dr. O.P. Pandey	Senior Professor
3.	Dr. Kulvir Singh	Professor
4.	Dr. Puneet Sharma	Associate Professor
5.	Dr. B.N. Chudasama	Associate Professor (Special Invitee)
6.	Dr. B.C. Mohanty	Assistant Professor
7.	Ms. Loveleen K. Brar	Assistant Professor (Special Invitee)
8.	Dr. Debabrata Deb	Assistant Professor
9.	Dr. B. Pal	Professor (Cognate Area)
10.	Dr. Uma Batra	Professor (Outside expert)
11.	Dr. R.K. Moudgil	Professor (Outside expert)

Dr. Alka Upadhyay could not attend the meeting and was granted leave of absence.

A meeting was held to review two undergraduate subjects (Applied Physics and Engineering Materials) and postgraduate courses (M.Sc. Physics/M.Tech. Metallurgical & Materials Engineering). Board of Studies has deliberated and discussed the course contents in detail.

The Board of Studies recommends

1 Scheme and syllabi of postgraduate courses (M.Sc. Physics/M.Tech. Metallurgical & Materials Engineering).
2 The undergraduate subjects (Applied Physics and Engineering Materials) of SPMS.

The meeting ended with a vote of thanks to the chair.

(MANOJ K. SHARMA) (O.P. PANDEY) (KULVIR SINGH) (PUNEET SHARMA)

(B.N. CHUDASAMA) (B.C. MOHANTY) (LOVELEEN K. BRAR)

(DEBABRATA DEB) (B. PAL) (UMA BATRA) (R.K. MOUDGIL)

Feedback from teachers

Panjab University and Punjabi University visit lab report :

We (Sunil Devi and Dr. Raj Kumar Gupta) visited Panjab University and Punjabi University M. Sc. physics labs for upgrading M. Sc. Nuclear Physics lab in School of Physics and Materials Sciences (SPMS), Thapar University. There were two major obervations :

1. Both of these labs have multiple sets of some of the set-ups like Geiger Muller (GM) detector and gamma spectrometer. Both of these set-ups can be used for performing multiple experiments. Therefore, it is important to have more than 1 experimental set-up of above mentioned mentioned but we have 1 of each at present. Punjabi University has 4 GM detector set-ups and 3 gamma spectrometer. Same is the case with Panjab University, they also have multiple set-ups of GM detector set-up and gamma spectrometer.
2. In both of the universities, M. Sc. nuclear labs also have some advanced experiments based on Compton scattering, gamma-gamma coincidence, alpha spectroscopy, beta spectroscopy.

Based on our visit to these labs, the list of suggested experiments to be added in M. Sc. Nuclear physics lab is :

Sr. No.	Experimental set-up	No. of set-ups suggested	Supplier	Price excluding taxes (in INR)
1.	GM counter set-up and accessories	3	Nucleonix	~ 90,000 each
2.	Gamma spectrometer and accessories	2	Nucleonix	~ 3,50,000 each
3.	Compton scattering and accessories	1	Didactic Systems India Pvt. Limited	~ 12,00,000
4.	Rutherford scattering and accessories	1	Didactic Systems India Pvt. Limited	~ 5,00,000
5.	Alpha spectroscopy and accessories (advanced set-up)	1	Didactic Systems India Pvt. Limited	~7,20,000
6.	Alpha spectroscopy (very basic set-up)	1	Cspark Research Pvt. Limited	~60,000

List of the experiments that can be performed with each set-up is :

1. GM counter set-up :

(a) Study of the characteristics of a GM tube and determination of its operating voltage, plateau length / slope etc.
(b) Verification of Inverse Square Law for gamma – rays.
(c) Study of nuclear counting statistics.
(d) Estimation of Efficiency of the G.M. detector for (i) Gamma source & (ii) Beta Source
(e) To Study Beta Particle Range, Maximum Energy and Backscattering of Beta particles.
(f) Production and Attenuation of Bremsstrahlung.

2. Gamma spectrometer :

(a) Study of energy resolution characteristics of a scintillation spectrometer as a function of applied high voltage and to determine the best operating voltage.
(b) Study of various gamma spectrum and calculation of FWHM & resolution for a given scintillation detector. Energy calibration of Gamma Ray Spectrometer (Study of linearity).
(c) Spectrum analysis of Cs-137 & Co-60 and to explain some of the features of Compton edge and backscatter peak qualitatively.
(d) Unknown energy of a radioactive isotope.
(e) Variation of gamma intensity as a function of distance (Verification of inverse square law).
(f) Activity of a Gamma Source (Relative Method as well as Absolute Method).
(g) Mass Absorption Coefficient.

3. Compton scattering :

(a) Quantitative observation of the Compton effect.
(b) Recording and calibrating a gamma spectrum.
(c) Absorption of gamma radiation.
(d) Detecting gamma radiation with a scintillation counter.

4. Rutherford scattering :

(a) Measuring the scattering rate as a function of the scattering angle and the atomic number.

5. Alpha spectroscopy (advanced set-up) :

(a) Alpha spectroscopy of radioactive samples.
(b) Determining the energy loss of alpha radiation in air.
(c) Determining the energy loss of alpha radiation in aluminum and in gold.
(d) Determining age using a Ra-226 sample.

5. Alpha spectroscopy (basic set-up) :

(a) Determining the energy loss of alpha radiation in air.

For details, manuals of all these experimentals provided by the suppliers and quotations are also attached. At present, it is very difficult to enagage 20 students with 2 experimental set-ups. The addition of these experiments will be very important for proper functioning of nuclear physics lab at M. Sc. level. From future perspecttive, if these experimental set-ups are added, the department can start a M. Sc. Physics course with specialization in nuclear physics by adding a few more adavnced experiments.