CHRIST (Deemed to be University)
Department of Mathematics

Feedback on curriculum : Action taken report (AY 17-18)

Highlights of the Comments received through the feedback on Curriculum:

1. The usual CIA tests are useful only for making us study in advance for the end semesters. I would suggest more projects and presentations to enable us to apply what we are learning because we write end semesters and mid semesters anyway.
2. If free and power tools such as python or C are used for numerical analysis and other practicals, it would be very good!
3. I strongly feel that the practical and theory part seems two different entities altogether rather than being under the same curriculum.
4. You need to create an interdisciplinary style of teaching (which combines Computer Science especially), otherwise Mathematics will lose more relevance in the future.
5. Scilab, Maxima classes need more attention sir/mam should teach at least, they are just telling us to do and we don't know what to do and how to do.
6. The curriculum should have more depth. It doesn't meet the quality standards if someone further wants to do higher studies in Mathematics.
7. The assessment process is less experimental and does not provide the student much to think about and implement his learnings. The questions are mostly predictable and solved in the class.
8. The curriculum is designed well to give the student an exposure to different branches of mathematics and their applications, but lacks enough in- depth study in a particular topic.
9. However, while teaching subjects like calculus, parallel usage of the visual representation to explain concepts (especially that require 3D figures) would help the student more to picturize the situations. (Softwares like MATLAB or MAXIMA can be used for this parallely)
10. The curriculum does not encourage us to do research.
11. I think the course is designed in a systematic manner but the only concern I have is that it should also teach some aspects of research by doing some projects or writing papers. Introduction to the current applications of the concept we are learning in class can help grow more interest towards the subject. This would really help for my future studies.
12. Add a chapter which deals with the applications of the chapters taught in that semester and have more in depth teaching of the subject should consider boosting the syllabus and challenging the students.

Action Taken:

As per the feedback received from students, the following courses were introduced:
1. MAT532 - Financial Mathematics
2. MAT552 - Financial Mathematics using Maxima
3. MTH331 - Computer Oriented Numerical Methods using MATLAB

(It was taken care that the practical and theory are in sync with each other)

Note: The requests that are not considered this year will be considered during the curriculum revision in the upcoming academic years.

HEAD
Department of Mathematics,
CHRIST (Deemed to be University)
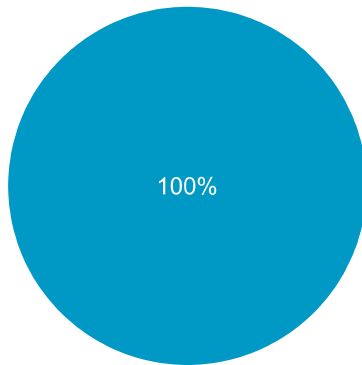BENGALURU-560 029

Student Feedback Survey on Curriculum
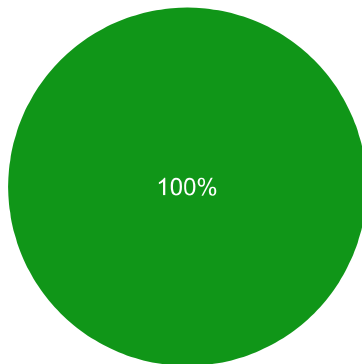
30 responses

Publish analytics

My Programme

30 responses

- CME
- CMS
- EMS
- PCM
- PME
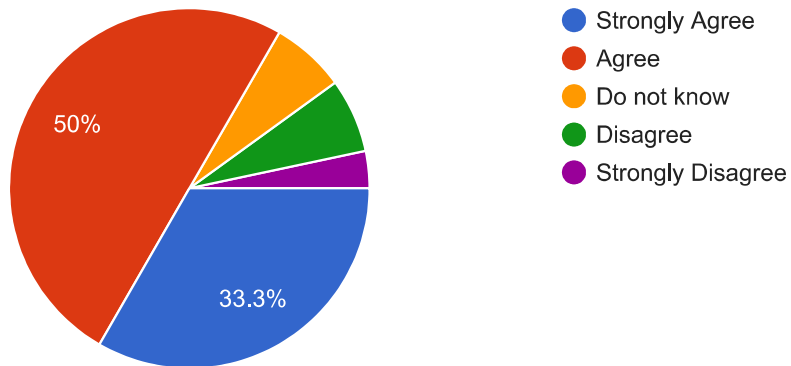- MSc Mathematics

100%

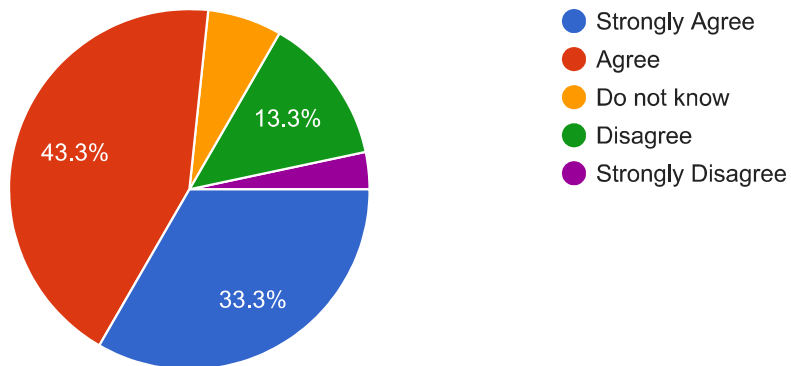## Semester

30 responses

- 1
- 2
- 3
- 4
- 5
- 6

100%

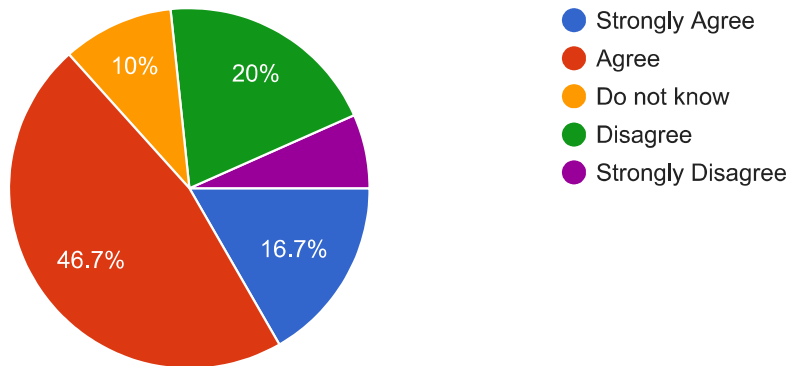## The curriculum provides scope for higher studies.

30 responses

- ● Strongly Agree
- ● Agree
- ● Do not know
- ● Disagree
- ● Strongly Disagree

50%

33.3%

The total number of hours allocated for the entire Mathematics curriculum in the programme is sufficient.
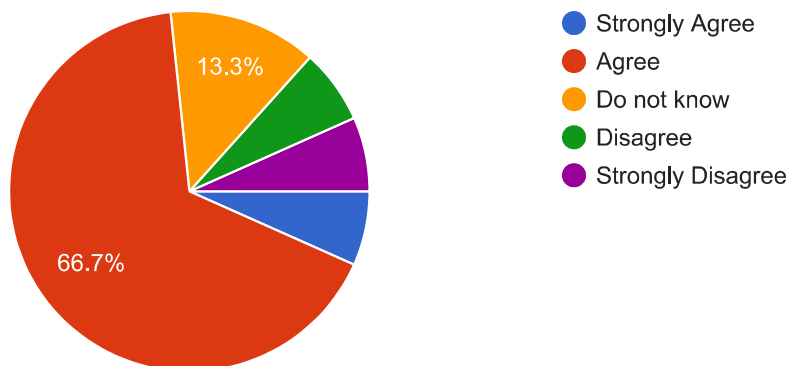
30 responses

- ● Strongly Agree
- ● Agree
- ● Do not know
- ● Disagree
- ● Strongly Disagree

43.3%

13.3%

33.3%

The course objectives meet my expectations.

30 responses

- Strongly Agree
- Agree
- Do not know
- Disagree
- Strongly Disagree

10% 20% 46.7% 16.7%

The specified learning outcomes rightly summarize the the scope of the course.

30 responses

- Strongly Agree
- Agree
- Do not know
- Disagree
- Strongly Disagree

13.3% 66.7%

The number of hours allocated for each unit of the course is sufficient.

30 responses

- Strongly Agree
- Agree
- Do not know
- Disagree
- Strongly Disagree

66.7%
10%
16.7%
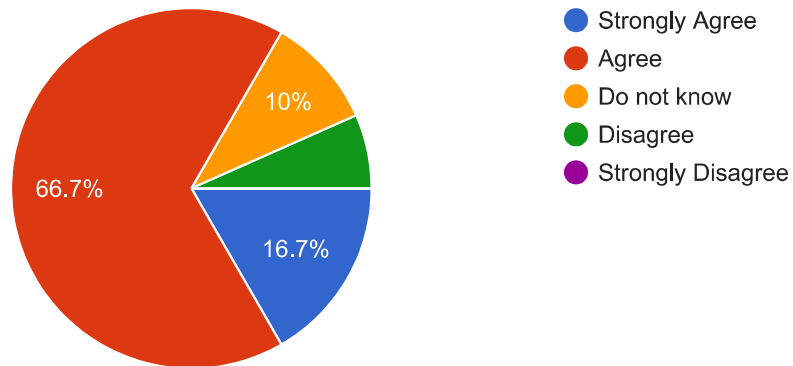
The learning resources provided cover all the topics specified in the course.

30 responses

- Strongly Agree
- Agree
- Do not know
- Disagree
- Strongly Disagree

66.7%
10%
13.3%
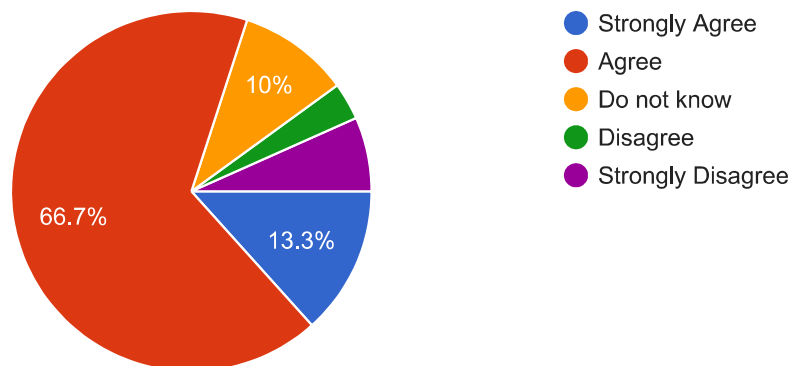
The assessment criteria meet the learning objectives of the courses.

30 responses

- ● Strongly Agree
- ● Agree
- ● Do not know
- ● Disagree
- ● Strongly Disagree

10%
23.3%
53.3%
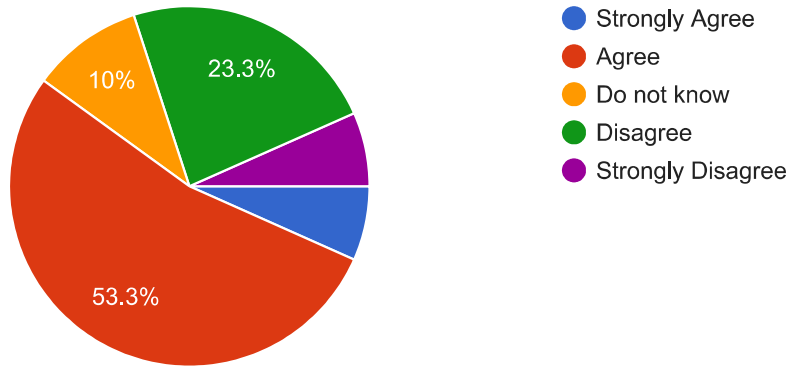
The assessment criteria perfectly measure my learning.

30 responses

- ● Strongly Agree
- ● Agree
- ● Do not know
- ● Disagree
- ● Strongly Disagree

16.7%
16.7%
56.7%
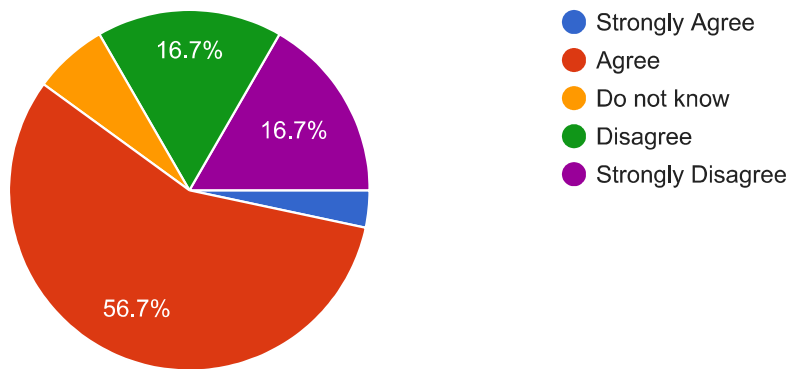
General Comments; if any:

3 responses

The teaching hours are too long. The curriculum doesnt suit msc math. Too many cia and project work

PG students should not be called to complete tasks which are supposed to be done by the teacher. Most important, teachers handling PG classes should know the importance of the course.

Please remove classical mechanics and teach some pure mathematics subjects, like linear algebra otherwise no one will clear NET for next 100 years.

Google Forms

Alumni Feedback

19 responses

Publish analytics

Program/s Completed

19 responses

CME — 3 (15.8%)
CMS — 3 (15.8%)
EMS — 4 (21.1%)
PCM — 5 (26.3%)
PME — 4 (21.1%)
MSc Mathematics — 0 (0%)
MPhil Mathematics — 0 (0%)
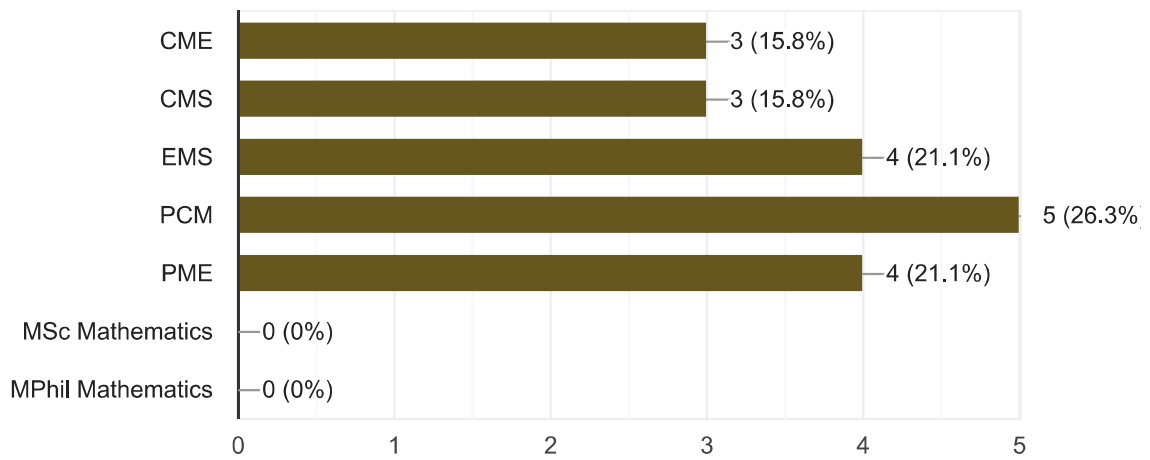
How do you rate the Over all quality of instruction by Faculty?

19 responses

52.6%
15.8%
31.6%

- Poor
- Fair
- Good
- Excellent
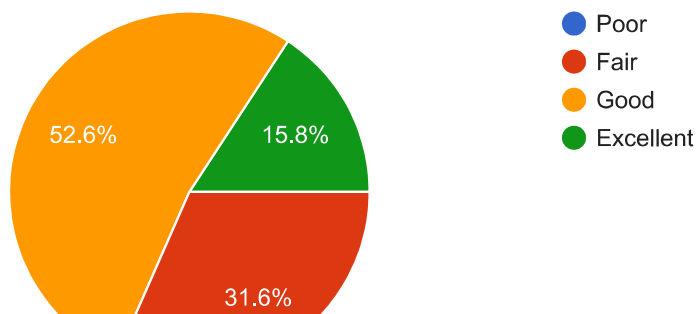
How do you rate the Quality of Instruction by Faculty in Mathematics

19 responses

Poor
Fair
Good
Excellent

42.1%
10.5%
15.8%
31.6%
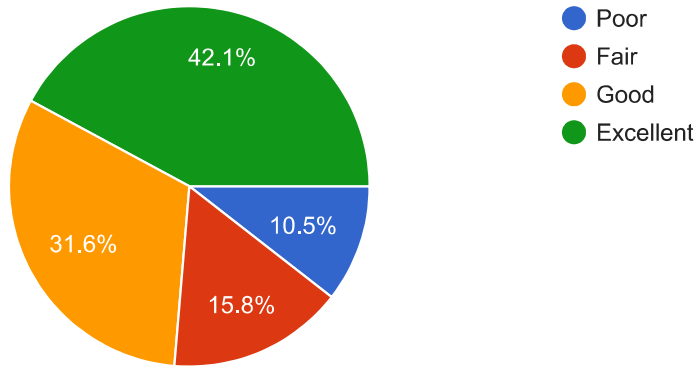
How do you rate the Quality of Education support Services?

19 responses

Poor
Fair
Good
Excellent

21.1%
52.6%
26.3%
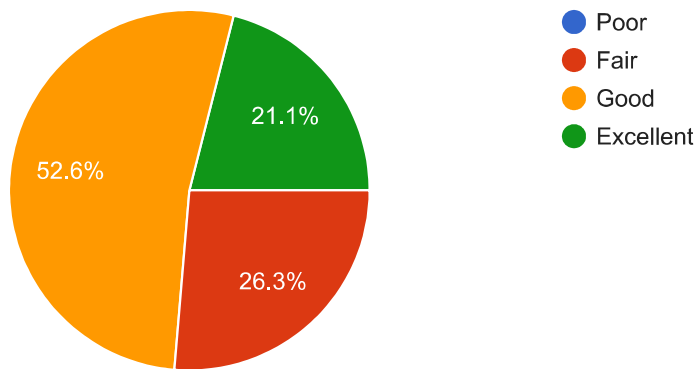
How do you rate the Quality of Individual attention from Faculty?

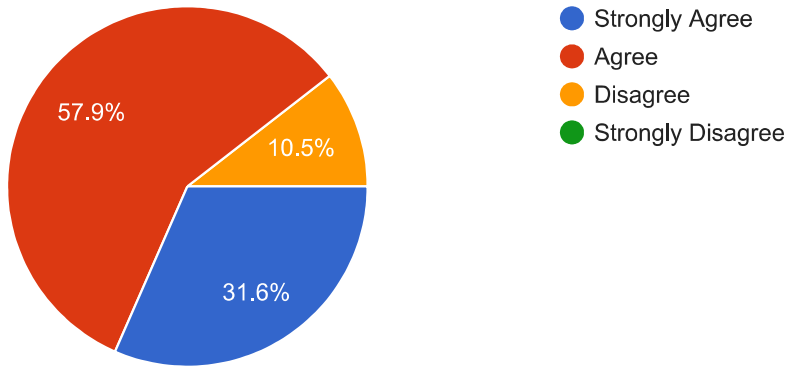19 responses

Poor
Fair
Good

31.6%

26.3%

15.8%

26.3%

Good
Excellent
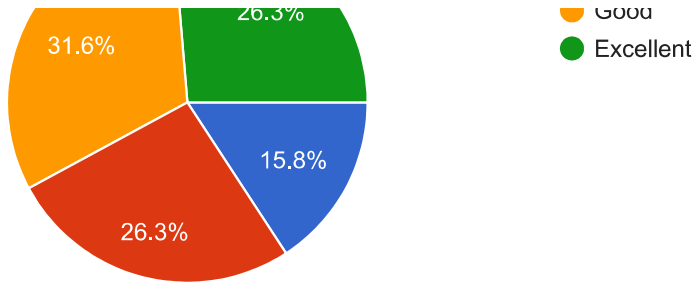
As a result of Mathematics courses I took at CHRIST, I learned to understand basic principles, methodologies and perspective in my discipline.

19 responses

57.9%

10.5%

31.6%

Strongly Agree
Agree
Disagree
Strongly Disagree

As a result of Mathematics courses I took at CHRIST, I learned to communicate knowledge more effectively in written and oral form.

19 responses

78.9%

10.5%

10.5%

Strongly Agree
Agree
Disagree
Strongly Disagree
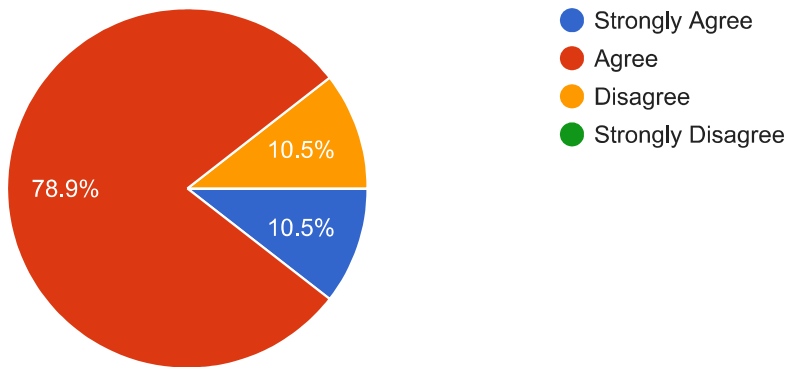
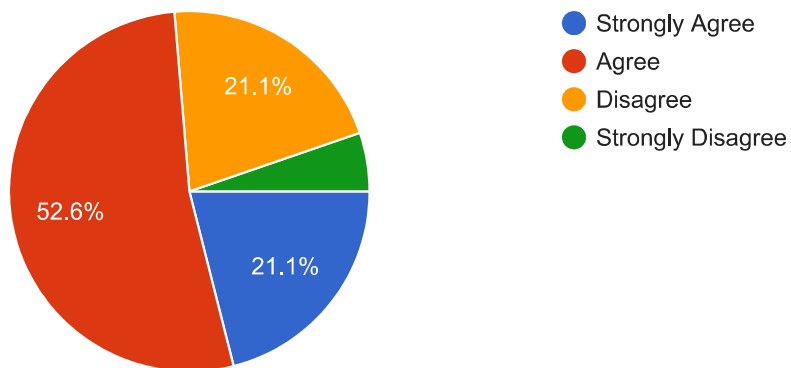As a result of Mathematics courses I took at CHRIST, I improved my critical thinking skills that will be useful throughout my life.

19 responses

- ● Strongly Agree
- ● Agree
- ● Disagree
- ● Strongly Disagree
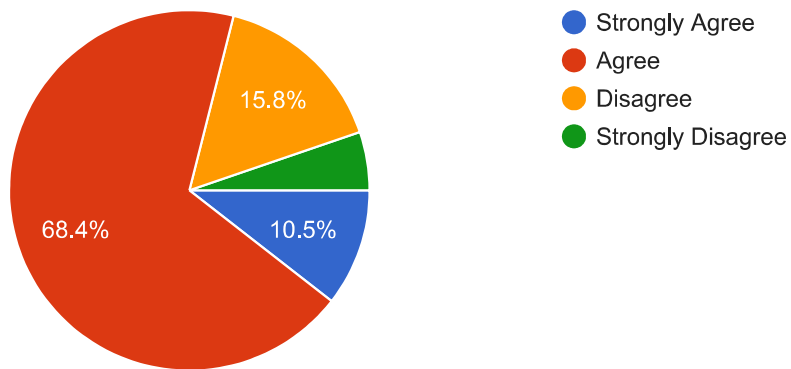
As a result of Mathematics courses I took at CHRIST, I learned to understand connections between my discipline and other disciplines.

19 responses

- ● Strongly Agree
- ● Agree
- ● Disagree
- ● Strongly Disagree

As a result of Mathematics courses I took at CHRIST, I learned to see my disciplines connection to global issues.

19 responses

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

26.3%
15.8%
15.8%
42.1%
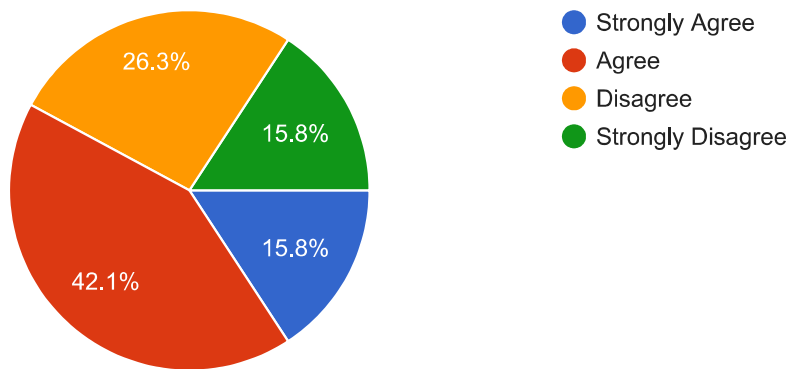
As a result of Mathematics courses I took at CHRIST, I am motivated for further studies in Mathematics.

19 responses

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

47.4%
10.5%
36.8%
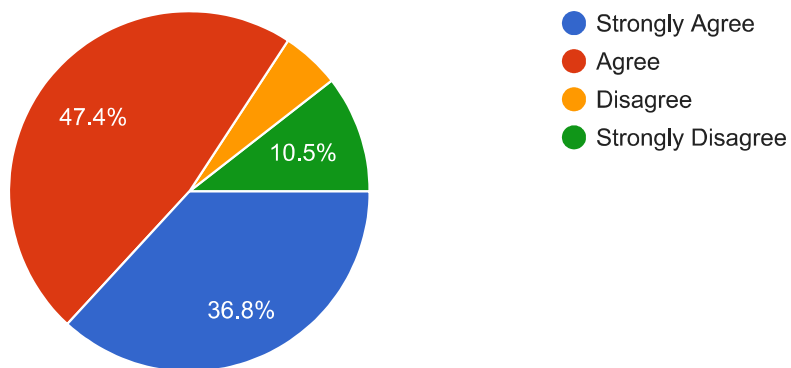
CIA grading practices and other academic policies were administrated fairly

19 responses

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

15.8%

68.4%

10.5%
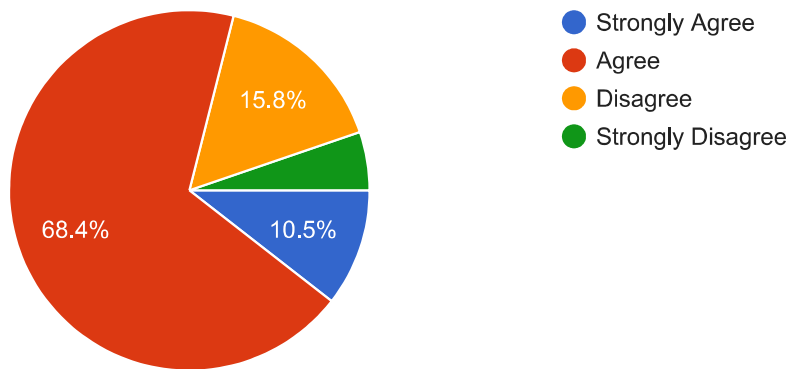
Faculty members in my Department were interested in my progress as a student.

19 responses

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

15.8%

52.6%

26.3%
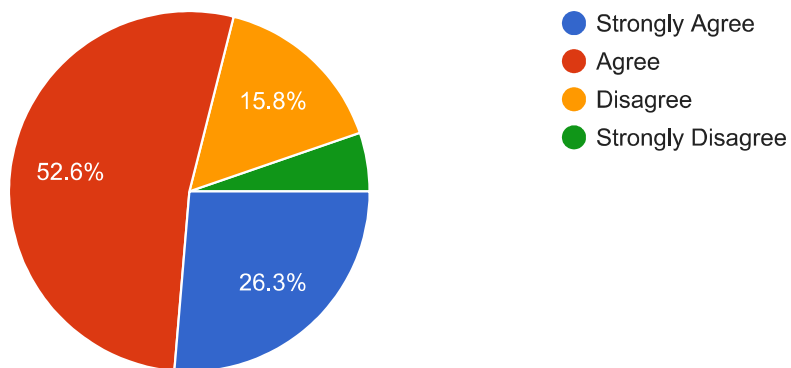
Teachers were available for Assistance outside of the class

19 responses

- 🔵 Strongly Agree
- 🔴 Agree
- 🟠 Disagree
- 🟢 Strongly Disagree

57.9%

31.6%
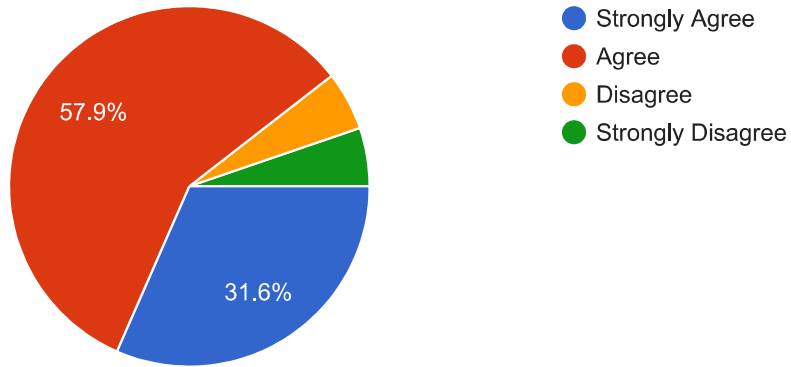
The courses required for my major were appropriate.

19 responses

- 🔵 Strongly Agree
- 🔴 Agree
- 🟠 Disagree
- 🟢 Strongly Disagree

68.4%

10.5%

21.1%
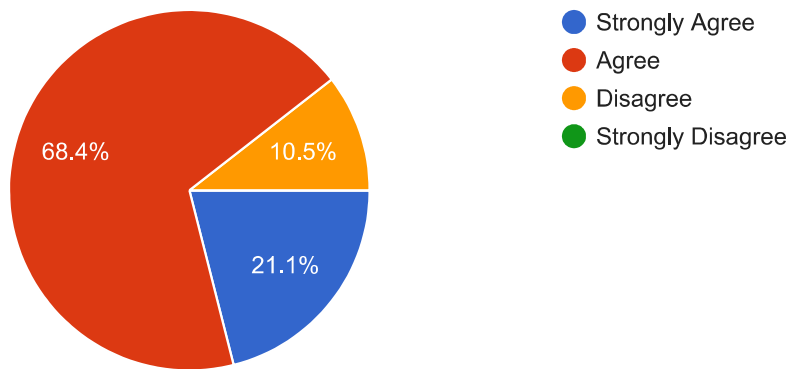
My major courses were intellectually challenging.

19 responses

- 🔵 Strongly Agree
- 🔴 Agree
- 🟠 Disagree

68.4%   10.5%

21.1%

Disagree
Strongly Disagree
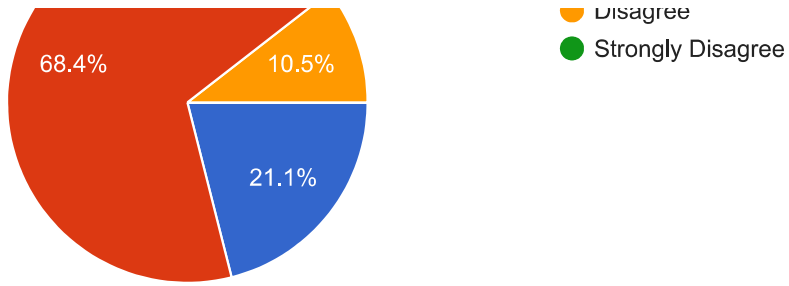
I would recommend this course at CHRIST to other students

19 responses

● Strongly Agree
● Agree
● Disagree
● Strongly Disagree

52.6%

31.6%
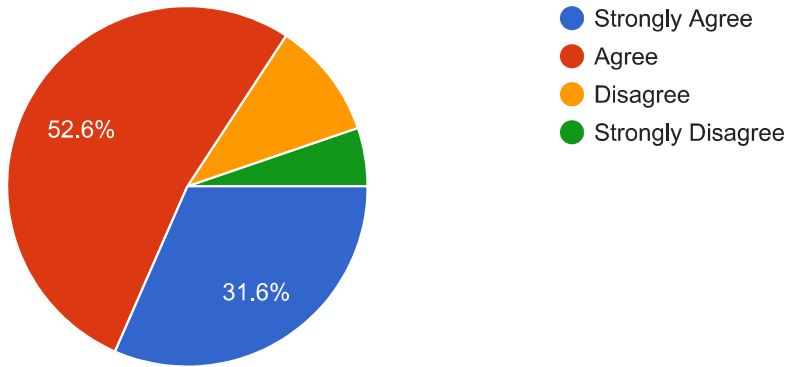
General Comments; if any:

1 response

It would be great if we had the option of Maths Honours or at least study only Maths in our third year

Google Forms

CHRIST UNIVERSITY
BENGALURU, INDIA
Declared as Deemed to be University under Section 3 of UGC Act 1956
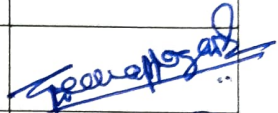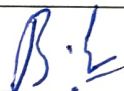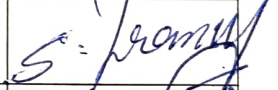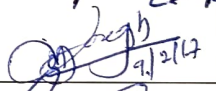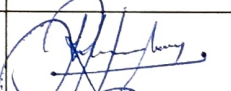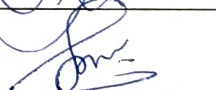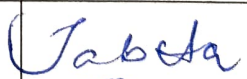
DEPARTMENT OF MATHEMATICS
BOS Meeting

BOS meeting of Department of Mathematics was held on 9th February 2017. The following members were present

Sl. No.	Name and Position	Member/Invitee	Signature
1.	Dr G D Veerappa Gowda, Dean, TIFR Centre for Applicable Mathematics, Bangalore	Member	
2.	Dr. Meenakshi D'Souza, Assistant Professor, Indian Institute of Information Technology, Bangalore.	Member	
3.	Dr. B Sury, Professor, Indian Statistical Institute, Bangalore.	Member	
4.	Dr. Abhinanda Sarkar, Associate Dean, MYRA School of Business, Stanford University, USA	Member	
5.	Dr (Fr) Abraham, Pro – Vice Chancellor, Christ University	Member	
6.	Dr T.V. Joseph	Chairman	
7.	Dr (Fr) Joseph Varghese	Member	
8.	Dr S Pranesh	Member	
9.	Dr Mayamma Joseph	Member	
10.	Prof. Gangadhar S Kanalli	Member	
11.	Dr Hari Baskar R	Member	
12.	Dr Smitha Nagouda	Member	
13	Dr Sangeetha George	Member	
14	Dr Sangeetha Shathish	Member	Absent
15	Ms Paradesi Tabitha Rajasekar	Member	
16	Mr B Mahantesh	Member	
17	Dr Surendra Kulkani ,Dean of Sciences	Member	

Minutes of 10th Meeting of the Board of Studies of the Department of Mathematics held on 09-02-2017 at 10:00 am in Board Room, Auditorium Block, Christ University.

In the Chair: Dr. T V Joseph, Head of Department.

Members Present:
Details of the members present are given in the attendance list.

Declaration of Quorum and Calling the Meeting to Order
The Chairman declared the validity of the quorum and called the Meeting to Order.

Matters on the Agenda:

1. **To confirm the Minutes of the previous meeting held on 16-02-2016.**
   The minutes of the previous meeting of the Board of Studies was duly reviewed and approved. It was noted that there were no matters arising out of the Minutes.

2. **To consider and recommend the changes in curriculum for B.Sc. Programmes.**
   The Chairman briefed about the proposed changes in the B.Sc curriculum. The contents of the curriculum were thoroughly assessed and the following are the suggestions given by the subject experts:
   - Include the textbook "J A Gallian, Contemporary Abstract Algebra, 8th ed., Narosa Books Distribution Private Ltd., 2012" in Essential Reading.
   - Include the topic "Multiplicative functions" in unit 2 of "MAT412:Number Theory".

   These changes made in the B.Sc curriculum were approved unanimously by the members of Board of Studies, subject to the changes incorporated based on suggestions received.

3. **To consider and recommend the changes in curriculum for M.Sc. Programme.**
   The Chairman briefed about the proposed changes in the M.Sc curriculum. The contents of the curriculum were thoroughly assessed and the following are the suggestions given by the subject experts:
   The following are the suggestions given by the subject experts:
   - Include a skill enhancement course on "Advanced Combinatorics" in first semester.

   The changes made in the M.Sc curriculum were approved unanimously by the members of Board of Studies, subject to the changes incorporated based on suggestions received.

4. **To consider and recommend the changes in curriculum for MPhil. Programme.**
   The contents of the MPhil curriculum were thoroughly assessed and the following are the suggestions given by the subject experts:
   The following are the suggestions given by the subject experts:
   - Contents of the Unit 3 of "RMT264: ADVANCED NUMBER THEORY" can be revised by specifying the topics more precisely.

The MPhil curriculum were approved unanimously by the members of Board of Studies, subject to the changes incorporated based on suggestions received.

5. **To review the Results of the ESE April and October 2016 for BSc, MSc and MPhil Programmes:**
The Result Analysis of the End Semester Examinations for BSc and MSc was reviewed and the Board expressed that the overall result were satisfactory.

6. **To consider the approval of the Board of Examiners for the academic year 2017-18:**
The updated list of members of the Board of Examiners were presented, reviewed and approved.

7. **To consider any other matter with the permission of the Chair:**
With no other matter to discuss the Chairman adjourned the meeting thanking all the participants. The Chairman thanked the subject experts and department members as well as Dean of Sciences for their presence and valuable suggestions.

Dr. T V Joseph 09-02-2017
Chairman
Board of Studies

Date: 09-02-2017

Minutes of 9th Meeting of the Board of Studies of the Department of Mathematics held on 16-02-2016 at 10:00 am in Room 119, IV Block, Christ University.

In the Chair: Dr. T V Joseph, Head of Department.

Members Present:
Details of the members present are given in the attendance list.

Declaration of Quorum and Calling the Meeting to Order
The Chairman declared the validity of the quorum and called the Meeting to Order.

Matters on the Agenda:

1. **To confirm the Minutes of the previous meeting held on 30-04-2015**
   The minutes of the previous meeting of the Board of Studies was duly reviewed and approved by the meeting. It was noted that there were no matters arising out of the Minutes.

2. **To consider and recommend the changes in curriculum for B.Sc. Programmes:**
   B.Sc. Mathematics syllabus has been restructured completely to favour Choice Based Credit System (CBCS) and the new structure is given below:

Sem	Name of the course	Theory/Practical **	Type*	Hr/wk	Credits	CIA Marks	ESE Marks	Total Marks	Duration of Exam	Remarks
I	MAT131-Differential Calculus	T	DSC	4	4	50	50	100	3	
	MAT151-Differential Calculus Using MAXIMA	P	DSC	2+2	2	50	----	50	---	
II	MAT-231-Differential Equations	T	DSC	4	4	50	50	100	3	
	MAT-251-Differential Equations Using MAXIMA	P	DSC	2+2	2	50	---	50	--	
III	MAT331-Real Analysis	T	DSC	4	4	50	50	100	3	
	MAT351-Real Analysis using MAXIMA	P	DSC	2+2	2	50	----	50	---	
IV	MAT431-Algebra	T	DSC	4	4	50	50	100	3	
	MAT451-Algebra using Scilab	P	DSC	2+2	2	50	----	50	---	
V	MAT531- Numerical Methods	T	DSE	3	3	50	50	100	3	MAT 531 and MAT551 are Mandatory, where as Students can choose any one of MAT532, 533, 534 with its practicals
	MAT551--Numerical Methods using Scilab	P	DSE	2+2	2	50	---	50	---	
	MAT532-Linear Algebra	T	DSE	3	3	50	50	100	3	
	MAT552-Linear Algebra using Scilab	P	DSE	2+2	2	50	---	50	---	
	MAT533-Mechanics	T	DSE	3	3	50	50	100	3	
	MAT553-Mechanics using Scilab	P	DSE	2+2	2	50	---	50	---	
	MAT534-Computational and Applied Mathematics	T	DSE	3	3	50	50	100	3	
	MAT554-Computational and Applied Mathematics using Scilab	P	DSE	2+2	2	50	---	50	---	
VI	MAT631-Complex Analysis	T	DSE	3	3	50	50	100	3	MAT 631 and MAT651 are Mandatory, where as Students can choose any one of MAT632, 633, 634 with its practicals
	MAT651-Complex Analysis using MAXIMA	P	DSE	2+2	2	50	---	50	---	
	MAT632-Operations Research	T	DSE	3	3	50	50	100	3	
	MAT652-Operations Research using Scilab	P	DSE	2+2	2	50	---	50	---	
	MAT633-Integral Transforms	T	DSE	3	3	50	50	100	3	
	MAT653-Integral Transforms using MAXIMA and Scilab	P	DSE	2+2	2	50	---	50	---	
	MAT654-Project	Both	DSE	5	5	100	---	100	---	

*: DSC – Discipline specific Core, DSE – Discipline Specific Elective   ** : T-Theory, P-Practical

The above mentioned structure was accepted by the members of BOS. The syllabi for the courses (CBCS) MAT131, MAT151, MAT231 and MAT251 are presented to the members of BOS and the following suggestions given were incorporated:

MAT131: Uniform Continuity is explicitly mentioned in Unit I.

The following are the suggestions given to due consideration while framing syllabus for the second year and third year under CBCS.

1. MAT534: Course can be given based on algorithms and the textbooks that can be incorporated are

    "E. W. Chenny and D.R.Kincad, *Numerical Mathematics and Computing*,7th ed., Cengage Learning, 2012."

    "R. L. Burden and J. D. Faires, Numerical Analysis, 9th ed., Cengage Learning, 2010."

2. Recommendations were given to include "Integral calculus and vector calculus" in the syllabus. This will be considered subject to permission given by the University for providing the skill enhancement courses under CBCS.

The second year and third year syllabi were already approved in the 8th BOS held on 30-04-2015. But minor changes were made, as per the suggestion given by the experts. The following are the changes:

1. MAT631: An additional textbook is added to Recommended Reading: "University of Bombay, Leadership Project Committee, *Textbook of Mathematical Analysis*, New Delhi : Tata McGraw-Hill ; New Delhi, 2008".

2. For all courses on Scilab, the textbook "Gilberto Urroz, *Numerical and Statistical Methods with SCILAB for Science and Engineering*, BookSurge Publishing, 2001" is recommended and is also incorporated.

The Board approved the changes after considering the validity of the reasons for the suggested changes.

3. **Curriculum for MSc and MPhil programmes** were approved in the 8th BOS held on 30-04-2015. But, MTH232-Differential Geometry is replaced with MTH232-Complex Analysis for the upcoming 2016-2017 (joining) batch. As per the recommendations of the subject experts, the topics on MTH233-Advanced algebra were revised with Unit I on Advanced Group Theory, Unit II on Rings, Unit III on Fields and Unit IV on Galois Theory. The second year syllabi were retained with minor changes and the changes are mentioned below:

MTH131:
1. Text Books added to Recommended Reading:

    S. Ponnusamy, *Foundations of Mathematical Analysis, illustrated ed.,* Birkhauser, 2012.

    S.C. Malik and S. Arora, Mathematics Analysis, 4thed., New Age International, 2012.

MTH133:
1. Topics added – Unit I:Legendre, Bessel's, Chebeshev's ineq.; Unit II: solution of irregular singular point; Unit III: Formation of PDE, solution of first and second order PDE,

2. Text book added to Essential Reading:

    S.J.Farlow, *An Introduction to Differential Equations and their Applications,*reprint, Dover Publications Inc., 2012.

3. Textbooks added to Recommended Reading:

E. A. Coddington, *Introduction to ordinary differential equations*. Reprint: McGraw Hill, 2006.

G. F. Simmons, *Differential equations with applications and historical notes*. Tata McGraw Hill, 2003.

Tyn Myint-U and L. Debnath, *Linear Partial Differential Equations*, Boston: Birkhauser, 2007.

MTH234:

Text book added to Recommended Reading:

W.R.Schowalter, *Mechanics of Non-Newtonian Fluids*, 1ˢᵗ ed., Pergamon Press, 1978.

MTH441:

Topics added: UNIT 1 – Galerkian Technique;

MTH433:

1. Unit 1 – Limitations of Fourier Series and Transforms needed for Wavelet Theory.

2. Text books added to Recommended Reading :

Abul Hasan Siddiqi, *Applied Functional Analysis: Numerical Methods, Wavelet Methods, and Image Processing*, CRC Press, 2003.

MTH444

1. Text books added to Essential Reading:

A.C. Fowler, *Mathematical Models in Applied Sciences*, Cambridge University Press, 1997.

Stanely J. Farlow, *Partial Differential Equations for Scientists and Engineers*, Dover.

2. Textbooks added to Recommended Reading:

M. Braun, C.S. Coleman and D. A. Drew, *Differential equation Models*, 1994.

J.N.Kapur, *Mathematical Modelling*, Springer, 2005.

J.N.Kapur, *Mathematical Models in Biology and Medicine*, East-West Press, New Delhi, 1981

MTH446

1. Textbooks added to Essential Reading

J. Houghton, *A Physics of Atmospheres*, 3ʳᵈ ed., Cambridge University Press, 2002.

2. Textbooks added to Recommended Reading

Joseph Pedlosky, *Geophysical fluid dynamics*, Springer-Verlag, 1979.

The Board approved the above mentioned changes after considering the validity of the reasons for the suggested changes.

4. **To review the Results of the ESE April and October 2015 for BSc, MSc and MPhil Programmes**

The Result Analysis of the End Semester Examinations for BSc was reviewed for Mathematics courses, by the BOS. The Board expressed that the overall result were satisfactory.

5. **To consider any other matter with the permission of the Chair**

With no other matter to discuss the Chairman adjourned the meeting thanking all the participants. The Chairman thanked the subject experts and department members as well as Dean of Sciences for their presence and valuable suggestions.

Dr. T V Joseph 16/02/2016
Chairman
Board of Studies   Date: 16-02-2016