



St. Joseph's College (Autonomous)

College with Potential for Excellence

NAAC accredited at A grade in the third cycle

Irinjalakuda-680 121, Thrissur (Dt.), Kerala

Telephone: 0480 - 2825358, M.No. 8301000125

Email: info@stjosephs.edu.in

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Department of Mathematics

Curriculum feedback analysis and action taken report 2016-17

Feedback

- The Students requested to introduce a certificate course to promote math skill development incorporating the latest mathematical software as this could assist them in creating a stable niche in the field of mathematics
- The faculty suggested conducting certificate courses connected to industry. Understanding the prominence of finding a suitable work and even deviating from the course of work if the situation demands compelled the teachers to suggest a new certificate course related to the industry.
- The students suggested in the introduction of coaching classes aimed at attempting competitive exams like JAM and CSIR-UGC NET/JRF. After thorough study of the emerging placement trends, the students acknowledged the extra weightage carried by qualifying competitive eligibility examinations that works as a catalyst in securing an appreciable position in the society.
- The alumnae suggested in conducting invited talks and events that could enhance the awareness of employment in the field as well as honoring talented alumnae of the college who have achieved meritorious credibility in the work arena that can inspire the students to take up creative and novel ideas in the field of mathematics.
- The teachers suggested that the students should be given ample opportunities to advance in research methodologies by staging their innovative ideas in prestigious journals and books. This also has the added advantage of securing higher grades for interviews and opens the route to further advance study options in the field.

Actions taken

- Department decided to start a new certificate course in data analysis using R and Certificate course in Transportation problem connected to the industry nearby.
- JAM Coaching Class Inaugurated on 4 th august 2017, CSIR – UGC NET/JRF coaching classes inaugurated on 24 th September 2016.
- The following events were held in accordance to the suggestions put forth by the alumnae:
 - Talk by Prof. Markus Brodmann Institute of Mathematics University of Zürich Switzerland in three sessions during 22nd ,24th ,28th June 2016 ,relating the philosophy of Mathematics and the Bible organized as a perfunctory of appreciation and



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- acknowledgement of the dedicated Mathematics teacher, Mrs Lilly T. I., Associate Professor, Dept. of Mathematics.
- Invited Talk on Real Analysis by Prof. H. Ananthanarayanan, IIT Bombay conducted on 27th June 2016.
 - Honored Dr. Radhadevi, Senior Scientist ISRO Alumni of Math Dept. for achieving International Award -the coveted ISPRS Eduard Doležal Award, 2016 on 16 th January 2017. Radhadevi becomes the first Indian woman space scientist to win this award.
 - Special Alumnae reunion of the department organized on 26 th January 2017 to felicitate Ms. Lilly on her retirement. Department honored three Ph. D holders of 2016 from Alumnae in the function
- The following paper presentation and publications were held from the department during the year 2016-17:
- Special Issue of Online Journal "Theoretical and Computational Mathematics", ISSN: 2395-660 Vol. 2 No. 2 was published in November 2016.
 - Doctoral fellow Ms. Sabna K. S. presented a paper in International seminar organized by Don Bosco College Bangalore.
 - Five research articles were published in Journal of international repute from Center of research in Mathematical Sciences during June 2016– January 2017
 - "MATHZIANNA- Vol. 8" - The journal by PG students of mathematics released during the final get-together of 4th semester M. Sc. 2016 students on 4th August 2016

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Department of Mathematics Curriculum feedback analysis and action taken report 2017-18

Feedback

- The Student suggested reducing the syllabus in Second Semester PG Mathematics paper Operation Research due to the complexity and bulk of the topics to be dealt in one semester exceeds beyond the average grasping capacity of the students.
- Students requested a change of textbook for Real analysis II paper of Second semester PG Mathematics as adhering to the recent resources guarantee better access to latest information in the field.
- The students put forward suggestions to add the syllabus removed from second semester PG's mathematics Operation research to Advanced operation research paper in IV Semester
- Faculty suggested rearranging the degree syllabus in order to achieve better clarity in the thought and learning methodologies. A clear and logical order of topics would ensure convenient methods of teaching and learning both for the students and for the teachers.
- The faculty also suggested in few mandatory changes to be implemented in the complementary statistics paper in order to distribute the topics within the course material evenly and for the convenience of study in a logical and updated manner.
- The alumnae suggested that the student should be given enough opportunities and guidance in the field of research and advanced study in the subject. Owing to the fact that, mathematics is a vast area flooded with ample areas to be explored and with a good foundation to kindle the interest of the students in the field can aide them in building their career.
- The employers suggested that the high demand for NET and JRF qualified students and those with high caliber in the subject were an additional benefit for the passing out graduates of the college and had higher chances of employment when they step into the world of career and advanced study and hence special coaching classes could be provided.
- The faculty suggested advancement of the teaching methodologies in order to cope up the new generation of students with higher educational needs. Undergoing a training program can assist the teachers to reinvigorate their teaching spirits and in turn extend the optimism and knowledge obtained to the students.



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Actions taken

- Suggestions given for second semester paper Operation Research, Real Analysis II of PG mathematics and UG Mathematics papers have been presented in BoS meeting and necessary changes have been made:
 - Text book of Real Analysis II in second semester was changed to H.L Royden- Real Analysis 4th edition, Macmillan publication.
 - Module III of operations research Integrated Programming, Flow and potential is removed and added to Elective paper, Advanced Operations Research
 - In the second semester, Industry related Applied Mathematics Project- using Mathematical Software is introduced
- The following were the changes introduced in the B.Sc. program based on the suggestion given by the faculty:

SL. No	Course code	Modifications
1.	MAT1B01	Applications of derivative included
2.	MAT2B02	Transcendental function included
3.	MAT3B03	Vectors and Analytical geometry included
4.	MAT4B04	Vector valued function and motion in space, multivariable functions and partial derivatives included from vector calculus.
5.	MAT5B05	Vector calculus, rearrangement of modules
6.	MAT5B07	Analytic functions from complex analysis is included
7.	MAT6B09	Rearrangement of modules

- Based on the suggestion put forth by the faculty the following changes were approved by the BOS in complementary statistics
 - Module 1 from 4th semester was re arranged in 1st Semester and removed the topics of random variables and distribution function.
 - Module 3 in fourth semester is split into two modules
 - In module 3, semester 4 methods of link relatives added
 - Module 4, chain base index number, fixed base index number, base shifting, splicing and deflating added.
- The following academic activities were held in the year 2017-2018 in order to reinvigorate the spirit of mathematics in the students:
 - SIM(Search in Mathematics) club activities inaugurated by Prof. Ambat Vijayakumar, Head, Department of Mathematics CUSAT added with a talk on Complex Analysis for final year UG and PG Students



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- As part of academy-industry collaboration, field visit to Agricultural University and Veterinary College Mannuthy, in connection with certificate course on Data Analysis using R Software, for UG students.
- One day Regional seminar on Applied Statistical Techniques supported by KSCSTE in association with Old Students Forum CUSAT was organized.
- Invited Talk on Overseas Opportunities in Mathematics by Mr. Patrick K Chacko, Department of Education, Western Australia was conducted.
- Invited Talk on Application of Optimization in Industry by Mr. Srinath Gopinath, Calibration methodology development Engineer at FCA, Fiat Chrysler Automobiles Michigan USA, was conducted.
- JAM orientation Programme was organized on 3rd February 2018. Mr. Yogesh Prasad Asst. Professor, Department of Mathematics Bishop Moore College Mavelikkara handled the sessions.
- Based on the suggestion put forth by the employers, NET- JRF Coaching Classes are organized from 8th May to 13th May by department of Mathematics, co-ordinated by Dr. Sr. Deeni C. J.. Mr. Sukumar Kumar from Chennai who is an expert in the coaching field is handling the classes.
- 13 day Instructional school for Teachers (IST) on Commutative algebra, funded by National Centre for Mathematics (a joint venture of TIFR & IIT Bombay) and NBHM (DAE) was organized during 24th April to 2nd May 2017

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Department of Mathematics

Curriculum feedback analysis and action taken report 2018-19

Feedback

- Faculty suggested that students should do advanced studies later through SWAYAM by MHRD
- The institution vouches for quality education in all its domains. The faculty suggested in the implementation of outcome based education in the prescribed syllabus for undergraduate and post graduate students in order to assert the targeted goals.
- The parents suggested conducting programs and activities initiated by the students that could inculcate the beneficial skills in their wards like problem solving, leadership and other soft skills in tackling challenges and gaining self-reliance during the course of study.
- Based on prominence of topics and the repetitions of the questions in the university examinations and other competitive exams in the field, the teaching faculty proposed a few changes that could be administered befitting the students for achieving a favorable outcome in their higher education and employment sector.
- The alumnae suggested that the students should be provided with ample task and discussions to orient them for higher level research and investigative skills. The department is keen in appreciating research activities in the campus so as to promote research culture equipping the students to gain prior experience in their domain of study. It was also recommended to seek the aid of an external agency to ensure the quality in the study.
- Owing to the current employment opportunities the employers suggested in incorporating a course that could elevate the students career opportunities, providing them adequate training and skills in accordance with the recent inclinations in the corporate sector.
- Students suggested to change text books of Complex Analysis and Linear Algebra for next UG syllabus revision.



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Actions taken

- Requirement of change of syllabus was put forth by the teachers in the BOS and the following revisions were approved in the UG syllabus:

SL. No	Course code	Modifications
1.	SJMTS1B01	Basic logic and number Theory
2.	SJMTS2B02	Calculus of single variable I
3.	SJMTS3B03	Calculus of single variable II
4.	SJMTS4B04	Linear algebra
5.	SJMTS5B05	Theory of equations & abstract algebra
6.	SJMTS6B10	Real analysis
7.	SJMTS5B07	Numerical analysis
8.	SJSTA2C02	Probability theory
9.	SJMTS5B09	Introduction to geometry
10.	SJSTA3C03	Probability distributions and sampling theory
11.	SJMTS6B11	Complex analysis
12.	SJMTS6B12	Calculus of multivariable
13.	SJMTS1C01	Mathematics 1
14.	SJMTH2C02	Mathematics 2

- Students for SWAYAM courses by MHRD, formed through local chapter at St. Joseph's
- Board of studies suggested conducting viva-voce for PG level for the deep rooted learning of the subjects. For this purpose it was also suggested to conduct problem solving sessions in every basis.(in action recommended) Inter School- Inter Collegiate MATH QUIZ 2018-19 was organized with Dr. Bobby P. Mathew, Assistant Professor, St. Thomas College Pala, Kottayam as the Quiz Master.
- For incorporating innovations for effectiveness in the updation of present trends in the theoretic and applied mathematics and for future employability the program outcomes, program specific outcome and course outcome of each course in the new syllabus were approved by the BOS

The following activities were conducted as a part of promoting research activities among the students:

- The department organized a talk on Research opportunities in Mathematics Abroad, by Mr. Bibekananda Misra, University of Kansas, USA.
- An invited talk on Mathematics in Neuroscience by Ms. Mitha Thomas, Research Fellow, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum on 21st January 2019
- Two day Research Orientation Program funded by KSCSTE on 13th and 14th August 2018.



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- International Conference on Recent Trends in Topology and its Applications (ICRTA2K18), in collaboration with National Centre for
- Topology and Applications, Rajagiri School of Engineering and Technology, was organized on 14th and 15th December 2018. Prof. Robert L Devaney, Boston University, Prof. Kit C Chan, Bowling Green State University, Ohio handled the sessions
- As part of academy-industry collaboration, a new certificate course, an overview on Data Science, in collaboration with Liveware, IT Solutions, had been introduced.

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Department of Mathematics

Curriculum feedback analysis and action taken report 2019-20

Feedback

- Faculty put forward suggestions to make some changes in the PG syllabus that can serve as a backing support for the students to extend their chances of opting for research potential topics like coding and advanced analysis. This would make certain that the students are left with ample alternatives to proceed further in the learning process.
- Students suggested in bringing new open courses in order to widen the scope of employability through subject areas that warrant them with a pool of knowledge in applied mathematics that would level up their probability of entering the practical world confidently.
- Employers suggested choosing Latex document preparation and other means of relevant documentation options as Audit course for Second semester PG mathematics. As this serves as a document preparation system used for the communication and publication of scientific documents, it would be instrumental preparing the students for documentation purposes they would come across such task in their academic route.
- Faculty suggested applying for the most relevant new generation course, B. Voc Course in Mathematics and Artificial Intelligence. Artificial intelligence was recommended as it lies in the limelight by instilling knowledge to students about augmenting our human efforts to solve global challenges.
- The alumnae suggested to introduce new elective courses for the students to opt from apart from the set syllabus to increase their flexibility in academics and experiment with other career options.



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Actions taken

- The Suggestions were presented in the BoS meeting. After close examination, revisions are done in the papers according to the feedback and submitted to the University for Approval.

Core Course

SL. No	Course code	Modifications
1.	SJMTH3C12	Complex Analysis
2.	SJMTH3C13	Functional Analysis
3.	SJMTH3C14	PDE & Integral Equations
4.	SJMTH4C15	Advanced Functional Analysis
5.	SJMTH3E01	Coding theory
6.	SJMTH4E05	Advanced Complex Analysis

- The following open courses were included into the syllabus based on student suggestions:

Open Courses

SL. No	Course code	Modifications
1.	SJMTS5D01	Applied Calculus
2.	SJMTS5D02	Discrete Mathematics for Basic and Applied Sciences
3.	SJMTS5D03	Linear Mathematical Models
4.	SJMTS5D04	Mathematics for decision Making

- The following Suggestions given for the audit course have been implemented in the 2019-20 academic year for PG:

Audit courses

SL. No	Course code	Modifications
1.	SJMTH1A01	Ability Enhancement Course
2.	SJMTH2A02	Technical writing with Latex
3.	SJMTH2A03	Scientific writing with Scilab
4.	SJMTH2A04	Scientific writing with Python

- Proposal for B.Voc Course in Mathematics and Artificial Intelligence has been given to the concerned authorities for approval.
- New elective course graph theory SJMTS6B14(E01) was introduced in the PG syllabus.

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Department of Mathematics

Curriculum feedback analysis and action taken report 2020-21

Feedback

- Students suggested reducing syllabus for examination due to COVID 19 pandemic crisis. Attending online classes came with its own set of drawbacks like network issues and affordability. Since the new normal of digitalization seemed strenuous to a few students that needed extra support and care, they proposed to limit the topics for examinations.
- Parents requested to conduct online examinations for Internal and External due to lock down issues. Consistently assessing and analyzing the student progress became vital in order to ensure the credibility of virtual classes and thereby prescribing remedial methods for the shortcomings witnessed.
- The alumnae suggested in conducting online programs of academic relevance in order to invest in the interest of the students in the subject and to ensure consistency in the process of learning.
- The stakeholders pressed on the need to make the students capable of handling responsibilities independently in the form of individual presentation and conduct of events that can in turn be a catalyst in creating managerial and leadership skills that can indirectly support the objectives of the syllabus.
- The faculty suggested in offering more certificate courses for the students that help them in expanding their horizons of interest and explore new variants of career probabilities meanwhile fortifying the relevance and novelty of the courses proposed to be implemented.

Actions taken

- The BOS Suggested to reduce syllabus of M.Sc. and B.Sc. Programme in the context of COVID 19 pandemic crisis, if university has given permission for the same
- Suggestion for online examination has been presented in BoS meeting. Members supported internal examination in online mode.
- B. Voc. Mathematics and AI syllabus have been designed to match with the present B. Sc. Math syllabus, to get equivalence to B. Sc. Mathematics program. BoS members approved and submitted the designed framework for University approval and in the year 2020, the new BVoc course on Mathematics & Artificial Intelligence was inaugurated by Rev. Fr. Jaison Paul Mulerikkal CMI, Principal, Jyothi Engineering College, Cheruthuruthy, Thrissur.
- Certificate course on "Vedic Mathematics" for I & II UG (Mathematics) was also introduced for the interested students.



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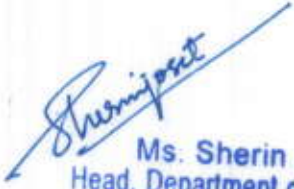
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- The following online academic based programs were conducted online according to the suggestion put forth by the alumnae:
 - Organized Webinar on "Graph Theory – Research Problems for Under Graduates" by Rev. Dr. Joseph Varghese Kureethara CMI, Professor, Department of Mathematics, Christ (Deemed to be University), Bangalore.
 - Dr. Sr. Deeni C J, Assistant Professor, Department of Mathematics, St. Joseph's College (Autonomous), Irinjalakuda has been a resource person in the two day online national seminar on recent research topics in Mathematics, Auxilium College (Autonomous), Vellore in the topic "Introduction to Cayley Graphs"
 - conducted an invited talk on "Importance and Scope of Statistics" by Dr. Nidhi P. Ramesh, Assistant Professor, Department of Statistics, Mar Athanasius College (Autonomous), Kothamangalam.
 - Department of Mathematics organized an International webinar on "Recent Research Developments in Graph Theory" by Dr. Sudeep Stephen, Lecturer, Department of Mathematics, University of Auckland, New Zealand
- The following programs and initiatives were volunteered by the students :
 - III UG students organized a Power point presentation competition "πratezzz PPT Competition 2k20" on the topic "Math Magic and Mystery"
 - The journal by PG students of mathematics "MATHZIANNA- Vol. 12" - was released.
 - Poster making Competition "Pegasus" was conducted as a part of SIM club activities by I PG students
 - I UG students organized an International online Mathematics Quiz "Sciento Fabio Quest"


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