JAI HIND COLLEGE

Basantsing Institute of Science & J. T. Lalvani College of Commerce
and Sheila Gopal Raheja College of Management.

Autonomous

Program Name: Master of Commerce (M.Com in Advanced Accountancy)

| CO\PO	PO1 Knowledge	PO2 Application	PO3 Research Aptitude	PO4 Problem Solving	PO5 Academic Writing	PO6 Soft Skills	PO7 Prof Ethics	PO8 Environment Cons	PO9 Analytical skills/Cr	PO 10 Managerial skills	PO 11 Taxation structure	PO12 Life Long learning	TOTAL	RANGE
CO1 (CMA)	✓	✓		✓					✓		✓	✓	5	M
CO2 (CMA)	✓	✓		✓					✓		✓	✓	5	M
CO3 (SM)	✓	✓		✓			✓		✓		✓	✓	6	M
CO4(SM)	✓	✓					✓		✓	✓		✓	5	M
CO5 (ECO1)	✓	✓	✓	✓					✓	✓		✓	7	H
CO6 (ECO1)	✓	✓		✓					✓		✓	✓	7	H
CO7(BEC)	✓	✓		✓			✓	✓	✓				8	H
CO8(BEC)	✓	✓					✓	✓	✓		✓		8	H
CO9 (RM)	✓	✓	✓		✓		✓		✓	✓			8	H
CO10(RM)	✓	✓	✓	✓	✓		✓		✓		✓		8	H
CO11(ECO2)	✓	✓		✓			✓		✓		✓		7	H
CO12 (ECO 2)	✓	✓		✓			✓		✓		✓		7	H
CO13 (CF)	✓			✓					✓	✓		✓	5	M
CO14 (CF)	✓	✓		✓					✓	✓		✓	5	M
CO15 (ECM)	✓	✓	✓						✓		✓	✓	5	M
CO16(ECM)	✓	✓	✓	✓			✓		✓			✓	7	M
CO17 (AFA)	✓	✓		✓					✓			✓	5	M
CO18 (AFA)	✓	✓		✓					✓		✓	✓	5	M
CO19 (IT)	✓	✓		✓		✓	✓				✓	✓	7	H
CO20 (IT)	✓	✓		✓		✓	✓					✓	7	H

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Autonomous

Program Name: Master of Commerce (M.Com in Advanced Accountancy)

CO\PO	PO1 Knowledge	PO2 Application	PO3 Research Aptitude	PO4 Problem Solving	PO5 Academic Writing	PO6 Soft Skills	PO7 Prof Ethics	PO8 Environment Cons	PO9 Analytical skills/Cr	PO10 Managerial skills	PO11 Taxation structure	PO12 Life Long learning	TOTAL	RANGE
CO21 (ACA)	✓	✓		✓			✓		✓		✓	✓	6	M
CO22 (ACA)	✓	✓		✓			✓		✓			✓	6	M
CO23 (IP)	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	10	H
CO24 (IP)	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	10	H
CO25 (CFA)	✓	✓							✓			✓	5	M
CO26 (CFA)	✓	✓		✓					✓			✓	6	M
CO27 (GST)	✓	✓		✓		✓	✓		✓			✓	7	M
CO28 (GST)	✓	✓		✓		✓	✓		✓			✓	7	M
CO29 (AFM)	✓	✓		✓					✓				5	M
CO30(AFM)	✓	✓		✓					✓					
CO31 (RP)	✓	✓	✓	✓	✓	✓	✓	✓	✓					
CO32 (RP)	✓	✓	✓	✓	✓	✓	✓	✓	✓					

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Program Name: :-M.Com(Advanced Accountancy)

PROGRAMME OBJECTIVES:-

PO1. To inculcate knowledge in developing skills in financial decision-making, including financial analysis, risk management, capital budgeting, and cost control techniques applicable to various industries.

PO2. To make students aware of specialized areas of accounting such as strategic management, Ethics, CSR and corporate governance, providing them with practical knowledge and applications.

PO3. To cultivate research abilities and critical thinking skills, enabling students to conduct in-depth analyses, interpret financial data, and propose solutions to complex accounting problems through Research Projects

PO4. To facilitate practical exposure through internships/projects, providing hands-on experience and industry insights to bridge the gap between academia and the professional world.

PO5. To Train students in economic forecasting techniques, financial modeling, and scenario planning to aid in making informed financial and investment decisions.

PO6. To Foster an understanding of global economic dynamics, trade theories, and the impact of international policies on businesses, preparing students to navigate the complexities of the global marketplace.

PO7. To Provide a comprehensive understanding of the principles, models, and frameworks underlying electronic commerce, including its historical evolution and contemporary trends

PO8. To Provide an in-depth understanding of various tax laws, regulations, and compliance requirements at local, national, and international levels.

PO9. To make students aware studying accounting and regulatory framework of Banking and Insurance industry
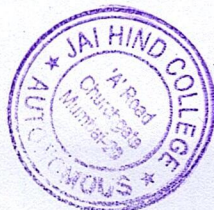
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PO10. To provide knowledge team work, cognitive abilities , managerial skills and leadership skills so as to achieve higher levels of education/professional courses.

PO11. To train to understand the taxation structure of the country.
PO12. To sensitize students about rules for Annual Reports of the Company.

COURSE OUTCOME: -

CO1. Implement knowledge to understand the provisions relating to Foreign Currency Conversion, Insurance, Banking and Environmental Accounting

CO2. Utilize knowledge in understanding with Heads of Income & Deductions and also to get along with practical aspects of Computation of Income and Tax of Individual.

CO33. Analyze marginal costing, standard costing, budgetary control concepts and their decision-making.

CO4. ummarize concept for learner in regarding Economics for Business Decision providing an insight into application of economic principles in business decision and develop analytical ability of the students

CO5. Implement analytical framework to understand the emerging world of e-commerce & develop the understanding of the learners towards various business models of E-commerce.

CO6. interpret Financial statements with ratios, financial models and capital structure theories

CO7. develop and apply the fundamental skills in formulating research problems

CO8. Solve problems in understanding of the key ideas in economics that are important for analyzing vital economic policies

CO9. Evaluate cost and use accounting concepts, highlighting their significance in business.

CO10.Solve problems based on finance and cost techniques drive decision-making techniques as well as to create and present financial and cost reports in a corporate setting.

CO11. Implement skill in improving knowledge in advanced auditing tools and their importance in business accounting.

CO12. Use techniques auditing techniques influence decision-making in operations and gain expertise in creating and presenting audit and cost reports within a corporate environment

CO13.To implement knowledge in advanced finance and accounting, emphasizing their significance in business.

CO14.To practice finance techniques that drive decision-making in business operations, focusing on creating and presenting financial reports within corporate settings

CO15.analyse the Direct Taxation rules, amendments and practical implications in the practical world.

CO16. Solve problems on research-oriented approach that challenges learners to inquire enthusiastically
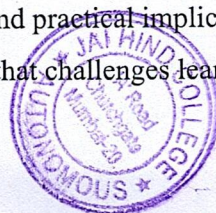
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and interpret specific study aspects in their own words, thereby cultivating their analytical abilities and eagerness to explore.

CO17.To enable experiential learning via internships or projects, offering firsthand practice and industry insights to align academic knowledge with practical application, thereby bridging the scholastic-professional interface.

CO18. To frame GST structure and its implications in India.

CO19.To apply advanced financial reporting standards, including International Financial Reporting Standards (IFRS), Cost Accounting Standards,Environmental Accounting etc.

CO20.To solve doubts about Amalgamation, mergers and valuation of business along with their consolidated financial statements

CO21. To use knowledge about capital budgeting and finance theories on management decisions.

CO22: To understand working capital management, financial policies and their influence on management decisions.

CO23: To give a chance to the students to work in the Corporate field and evaluate their individual strengths and weakness.

CO24: To give the students a first-hand experience to corporate working culture.

CO25: To understand how to optimise resource allocation, and improving overall financial performance and efficiency through cost management Accounting.

CO26: To equip students with knowledge to determine and analyse control cost for decision making

CO27: To understand the shift to Goods and Service Tax and its implications on the indirect tax structure.

CO28: To understand the working and applicability of the Goods and Service Tax Act.

CO29: To understand that how to increase the value of a firm for its shareholders by making investment decisions that enhance the company's profitability and stock price

CO30: To equip the focus on determining the best mix of debt and equity financing to minimise cost of capital while managing risk and financial flexible decision

CO31: To enable the students to acquire knowledge with respect to research questions, setting hypothesis, to evaluate the problem and finding of results

CO32: To enable the students with knowledge with respect to interpretation of results of data collected by them and providing recommendations to the research problem.
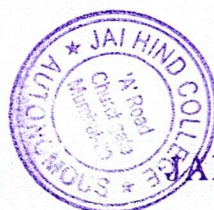
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Basantsing Institute of Science & J. T. Lalvani College of Commerce
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Autonomous

Program Name: Master of Science (M.Sc. in Big Data Analytics)

CO/PO	Course code	PO1 develop relevant programming abilities	PO2 analysis of data	PO3 develop the ability to build and assess data-based model	PO4 apply data science concepts	PO5 Inculcate critical thinking to carry out scientific investigation	PO6 Equip the student with skills to analyze problems	PO7 Prepare students for pursuing research	PO8 Continue to acquire relevant knowledge and skills	PO9 Basic understanding of statistical methods	PO10 Knowledge about storage, organization and manipulation	PO11 Understanding about the analytics chain	PO12 Applying dimensionality reduction techniques	PO13 Estimation of various statistics from stored and/or streaming data in the iterative process of model selection and model building	PO14 Modelling optimization techniques	PO15 Interpret analytical models to make better business decisions	Weightage	Letter grade
CO1	SBDA101	√	√	√	√	√	√	√		√			√	√		√	11	H
CO2	SBDA102	√	√			√		√	√	√				√	√	√	9	M
CO3	SBDA103	√	√			√	√	√					√	√	√		10	M
CO4	SBDA104	√		√	√	√					√	√	√	√		√	9	M
CO5	SBDA105	√	√	√	√	√			√	√				√		√	9	M
CO6	SBDA201	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	15	H
CO7	SBDA202	√	√	√	√	√	√	√	√	√	√	√	√	√		√	14	H
CO8	SBDA203	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	15	H
CO9	SBDA204	√	√	√	√		√	√	√	√	√	√	√	√		√	13	H
CO10	SBDA205	√	√		√	√	√	√	√	√	√	√	√			√	12	H
CO11	SBDA206					√	√	√	√								4	L
CO12	SBDA301	√	√		√	√			√	√		√	√				8	M
CO13	SBDA302	√	√		√	√	√	√	√		√	√	√			√	12	H
CO14	SBDA303	√	√			√	√	√	√				√			√	8	M
CO15	SBDA304A	√				√	√	√	√	√					√	√	8	M
CO16	SBDA305B		√	√	√		√	√	√	√	√	√		√		√	11	H
CO17	SBDA401PJ		√	√	√	√	√	√	√	√	√	√	√			√	13	H

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Basantsing Institute of Science & J. T. Lalvani College of Commerce.
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Autonomous

Program Name: Master of Science (M.Sc in Big Data Analysis)

PROGRAM OBJECTIVES:

PO1: To empower students with relevant programming abilities.

PO2: To inculcate knowledge with statistical analysis of data with professional statistical software

PO3: To train students to build and assess data-based model skills in data management.

PO4: To impart knowledge on data science concepts and methods to solve problems in real-world contexts and will communicate these solutions effectively

PO5: To inculcate critical thinking to carry out scientific investigation objectively without being biased with preconceived notions.

PO6: To equip the student with skills to test problems, formulate a hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.

PO7: To prepare students to formulate research or to develop careers in industry of data sciences and allied fields

PO8: To train and update students with relevant knowledge and skills appropriate to professional activities and demonstrate the highest standards of ethical issues in data sciences.

PO9: To learn different statistical methods, probability, mathematical foundations, and computing methods relevant to data analytics.

PO10: To inculcate knowledge about storage, organization, and manipulation of structured data along with challenges associated with big data computing.
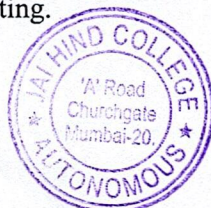
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PO11: To make the students aware about the analytics chain beginning with problem identification and translation, followed by model building and validation with the aim of knowledge discovery in the given domain.

PO12: To impart knowledge on dimensionality reduction techniques in finding patterns/features/factors in big data.

PO13: To evaluate various statistics from stored and/or streaming data in the iterative process of model selection and model building.

PO14: To make them aware about optimization techniques such as linear programming, non-linear programming, and transportation techniques in various problem domains such as marketing and supply chain management.

PO15: To inculcate knowledge about analytical models to make better business decisions.

COURSE OUTCOMES:

CO1: Present results effectively by making appropriate displays, summaries, and tables of data.

CO2: Perform simple statistical analyses using R.

CO3: Know the principle definitions, fundamental theorems, and important relationships in statistics.

CO4: Communicate mathematical ideas orally and in writing, with precision, clarity and organization, using proper terminology and notation.

CO5: Formulate the LPP for a real-life Problems and give the solution for the problem using Graphical, Simplex and Big-M method.

CO6. Understand the basic concepts and the applications of database systems.

CO7: Identify the data models for relevant problems.

CO8: Student must be Able to understand the building blocks of Big Data.

CO9: Understand how to use data visualization.

CO10: Understand simple statistical summaries using software designed for statistical analyses.

CO11: Appreciate the strengths and limitations of various data mining and data warehousing models.

CO12: Explain the analysing techniques of various data.

CO13: Can train a classifier on an unknown data set to optimize its performance.
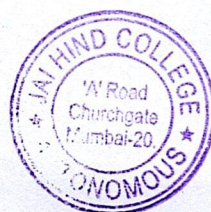
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CO14: Develop novel solutions to identify significant features in data e.g. identify the feedback of potential buyers over online markets to increase the popularity of different products.

CO15: Implement advance statistical concepts and some of their basic applications in real world.

CO16: Interpret the findings from the data analysis, and the implications of those findings.

CO17: Comprehend fundamental concepts in Data Science and Analytics.

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Autonomous

Program Name: M.Sc. Physical Chemistry

Code	CO\PO	PO1 Knowledge	PO2 Research	PO3 Laboratory skills	PO4 Critical Analysis	PO5 Instrumentation skills	PO6 Synthesis and characterisation	PO7 Chemical Safety	PO8 Green Chemistry	PO9 Chemical Informatics	PO10 Entrepreneurship	PO11 Leadership	PO12 Professional Development	PO13 Continuous learning	PO14 Chemical health and wellness	PO15 Intellectual property	H/M/L
PSCHE101	CO1	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓	H
PSCHE102	CO2	✓	✓		✓			✓	✓			✓	✓	✓	✓		M
PSCHE103	CO3	✓	✓		✓		✓		✓		✓	✓	✓	✓	✓	✓	H
PSCHE104	CO4	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	H
PSCHEPR101	CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEPR102	CO6	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	H
PSCHEPR103	CO7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEPR104	CO8	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓		H
PSCHE201	CO9	✓	✓		✓				✓		✓	✓	✓	✓		✓	M
PSCHE202	CO10	✓	✓		✓		✓	✓	✓			✓	✓	✓	✓	✓	H
PSCHE203	CO11	✓	✓		✓	✓					✓	✓		✓		✓	H
PSCHE204	CO12	✓	✓		✓	✓	✓					✓		✓		✓	H
PSCHEPR201	CO13	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	H
PSCHEPR202	CO14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	H
PSCHEPR203	CO15	✓	✓	✓	✓		✓	✓	✓		✓			✓	✓	✓	H
PSCHEPR204	CO16	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	H
PSCHE1301	CO17	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	H
PSCHE1302	CO18	✓	✓		✓	✓	✓		✓	✓		✓		✓		✓	M
PSCHE1303	CO19	✓	✓		✓	✓	✓	✓	✓			✓	✓	✓		✓	H
PSCHE1304	CO20	✓	✓		✓						✓	✓	✓	✓		✓	M
PSCHEP1301	CO29	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEP1302	CO30	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	H
PSCHEP1303	CO31	✓	✓		✓					✓	✓	✓	✓	✓		✓	M
PSCHEP1304	CO32	✓	✓		✓				✓	✓		✓	✓	✓		✓	M
PSCHE1401	CO41	✓	✓		✓	✓	✓				✓	✓	✓	✓		✓	M
PSCHE1402	CO42	✓	✓		✓		✓					✓	✓	✓		✓	M
PSCHE1403	CO43	✓	✓		✓		✓			✓	✓	✓	✓	✓		✓	H
PSCHE1404	CO44	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓		✓	H
PSCHEP1401	CO53	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEP1402	CO54	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H
PSCHEP1403	CO55	✓	✓		✓		✓			✓		✓		✓		✓	M
PSCHEP1404	CO56	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H

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Autonomous

Program Name: M.Sc. Inorganic Chemistry

Code	CO\PO	PO1 Knowledge	PO2 Research	PO3 Laboratory skills	PO4 Critical Analysis	PO5 Instrumentation skills	PO6 Synthesis and characterisation	PO7 Chemical Safety	PO8 Green Chemistry	PO9 Chemical Informatics	PO10 Entrepreneurship	PO11 Leadership	PO12 Professional Development	PO13 Continuous learning	PO14 Chemical health and wellness	PO15 Intellectual property	H/M/L
PSCHE101	CO1	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓	H
PSCHE102	CO2	✓	✓		✓			✓	✓			✓	✓	✓	✓		M
PSCHE103	CO3	✓	✓		✓		✓		✓		✓	✓	✓	✓	✓	✓	H
PSCHE104	CO4	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	H
PSCHEPR101	CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		H
PSCHEPR102	CO6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		H
PSCHEPR103	CO7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEPR104	CO8	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓		H
PSCHE201	CO9	✓	✓		✓						✓	✓	✓	✓		✓	M
PSCHE202	CO10	✓	✓		✓		✓	✓			✓	✓	✓	✓	✓	✓	H
PSCHE203	CO11	✓	✓		✓	✓					✓	✓	✓	✓	✓	✓	H
PSCHE204	CO12	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓		✓	H
PSCHEPR201	CO13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEPR202	CO14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEPR203	CO15	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓	✓	✓	H
PSCHEPR204	CO16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHE2301	CO21	✓	✓		✓	✓					✓	✓	✓	✓	✓	✓	M
PSCHE2302	CO22	✓	✓		✓	✓	✓				✓	✓	✓	✓		✓	M
PSCHE2303	CO23	✓	✓		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	H
PSCHE2304	CO24	✓	✓		✓	✓	✓				✓	✓	✓	✓		✓	M
PSCHEP2301	CO33	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	H
PSCHEP2302	CO34	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEP2303	CO35	✓	✓		✓					✓	✓		✓	✓		✓	M
PSCHEP2304	CO36	✓	✓		✓		✓				✓		✓	✓		✓	M
PSCHE2401	CO45	✓	✓		✓		✓				✓	✓	✓	✓		✓	M
PSCHE2402	CO46	✓	✓		✓		✓				✓	✓	✓	✓		✓	M
PSCHE2403	CO47	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓		✓	H
PSCHE2404	CO48	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓		✓	H
PSCHEP2401	CO57	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	H
PSCHEP2402	CO58	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	H
PSCHEP2403	CO59	✓	✓		✓		✓			✓	✓		✓	✓		✓	M
PSCHEP2404	CO60	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	H

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Program Name: M.Sc. Organic Chemistry

Code	CO\PO	PO1 Knowledge	PO2 Research	PO3 Laboratory skills	PO4 Critical Analysis	PO5 Instrumentation skills	PO6 Synthesis and characterisation	PO7 Chemical Safety	PO8 Green Chemistry	PO9 Chemical Informatics	PO10 Entrepreneurship	PO11 Leadership	PO12 Professional Development	PO13 Continuous learning	PO14 Chemical health and wellness	PO15 Intellectual property	H/M/L
PSCHE101	CO1	✓	✓	✓	✓	✓	✓	✓	✓	☐	✓	✓	✓		✓	✓	H
PSCHE102	CO2	✓	✓	☐	✓	☐	☐	✓	✓	☐		✓	✓	✓	✓	☐	M
PSCHE103	CO3	✓	✓	☐	✓	☐	✓	☐		✓	✓	✓	✓	✓		✓	H
PSCHE104	CO4	✓	✓	☐	✓	✓	☐	✓	✓	✓	✓	✓				✓	H
PSCHEPR101	CO5	✓	✓	✓	✓	✓	✓	✓		✓	✓	☐	✓	✓		☐	H
PSCHEPR102	CO6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			H
PSCHEPR103	CO7	✓	✓	✓	✓	✓	✓			✓							H
PSCHEPR104	CO8	✓	✓	✓	✓	✓	✓										H
PSCHE201	CO9	✓	✓	☐	✓	☐	☐	☐	☐	☐	✓	✓	✓	✓	☐	✓	M
PSCHE202	CO10	✓	✓	☐	✓	☐	✓	✓		☐		✓	✓	✓	✓	✓	H
PSCHE203	CO11	✓	✓	☐	✓	✓	✓	✓	☐			✓	✓	✓		✓	H
PSCHE204	CO12	✓	✓	☐	✓	✓	✓	☐	☐		✓	✓	✓	✓	☐	✓	H
PSCHEPR201	CO13	✓	✓	✓	✓	✓	✓	✓		✓	✓	☐	✓	✓		✓	H
PSCHEPR202	CO14	✓	✓	✓	✓	✓	✓	✓		✓	✓	☐	✓	✓			H
PSCHEPR203	CO15	✓	✓	✓	✓	☐	✓	✓		☐		☐	✓				H
PSCHEPR204	CO16	✓	✓	✓	✓	✓	✓			✓							H
PSCHE3301	CO25	✓	✓	☐	✓	✓	☐	☐	☐			✓	✓	✓	☐	✓	M
PSCHE3302	CO26	✓	✓	☐	✓	✓	☐	☐	☐			✓	✓	✓		✓	M
PSCHE3303	CO27	✓	✓	☐	✓	☐	✓	☐	☐			✓	✓	✓	☐	✓	M
PSCHE3304	CO28	✓	✓	☐	✓	☐	☐	☐	☐			✓	✓	✓	☐	✓	H
PSCHEP3301	CO37	✓	✓	✓	✓	☐	☐	☐	✓		✓	☐	✓	✓	✓	✓	H
PSCHEP3302	CO38	✓	✓	✓	✓	☐	☐	☐	☐		✓	☐	✓	✓	✓	✓	H
PSCHEP3303	CO39	✓	✓	☐	✓	☐	☐	☐	✓	✓	✓	✓	✓	✓	☐	✓	M
PSCHEP3304	CO40	✓	✓	☐	✓	☐	☐	☐	✓	☐		✓	✓	✓	☐	✓	M
PSCHE3401	CO49	✓	✓	☐	✓	✓	☐	☐	☐		✓	✓	✓	☐	☐	✓	M
PSCHE3402	CO50	✓	✓	☐	✓	☐	☐	☐	☐		✓	✓	✓	☐	☐	✓	M
PSCHE3403	CO51	✓	✓	☐	✓	✓	☐	☐	✓		✓	✓	✓	☐	☐	✓	H
PSCHE3404	CO52	✓	✓	☐	✓	✓	☐	☐	✓		✓	✓	✓	☐	☐	✓	H
PSCHEP3401	CO61	✓	✓	✓	✓	✓	✓	✓	✓	☐	✓	☐	✓	✓	✓	✓	H
PSCHEP3402	CO62	✓	✓	✓	✓	✓	✓	✓	✓	☐	✓	☐	✓	✓	✓	✓	H
PSCHEP3403	CO63	✓	✓	☐	✓	☐	✓	☐	✓		✓	☐	✓	✓	☐	✓	M
PSCHEP3404	CO64	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	☐	✓	✓	✓	✓	H

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Program Name: Master of Science (M.Sc in Chemistry)

PROGRAM OBJECTIVES:

PO1: Provide students with an advanced and comprehensive understanding of core principles and advanced topics in chemistry, including organic, inorganic, physical, and analytical chemistry.

PO2: Foster the development of strong research skills, enabling students to plan, execute, and communicate independent research projects effectively, culminating in a high-quality thesis or dissertation.

PO3: Equip students with advanced laboratory techniques and safety protocols, ensuring proficiency in experimental design, data collection, and analysis.

PO4: Cultivate the ability to critically evaluate scientific literature, assess research methodologies, and synthesize information to contribute to scientific knowledge.

PO5: Develop specialized proficiency in advanced analytical techniques to enable graduates to analyze and separate complex molecular structures and materials.

PO6: Cultivate knowledge on materials chemistry, with objectives aimed at synthesizing and characterizing novel materials, such as nanoparticles, polymers, and nanocomposites, for diverse applications.

PO7: Semsitize in chemical safety and risk assessment, with objectives aimed at training graduates to identify potential hazards, assess risks, and implement safety protocols in laboratory settings.

PO8: Emphasize the principles of green chemistry, with objectives centered around developing sustainable and environmentally friendly chemical processes, minimizing waste, and reducing the environmental impact of chemical research.

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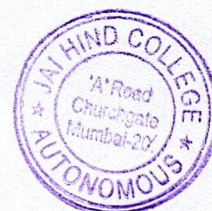
PO9: Develop proficiency in chemical informatics, enabling graduates to utilize data mining, machine learning, and computational tools for chemical data analysis and chemical informatics applications.

PO10: Foster an entrepreneurial spirit, with objectives aimed at equipping graduates to identify market opportunities, develop business plans, and commercialize chemical innovations.

PO11: Prepare graduates for leadership roles in chemical education, emphasizing curriculum development, pedagogical innovation, and the ability to inspire the next generation of chemists.

PO12: Support students in their professional development, including job market readiness, networking, and career planning within the field of chemistry.

PO13: Foster a commitment to lifelong learning, encouraging graduates to stay current with developments in chemistry and related disciplines throughout their careers.

PO14: Inculcate knowledge in chemistry of health and wellness, with objectives aimed at understanding the chemical basis of nutrition, pharmaceuticals, and the development of chemical interventions for health improvement.

PO15: Train in intellectual property management, preparing graduates to navigate patent processes, protect intellectual property, and contribute to innovation in chemical industries.

COURSE OUTCOMES:

CO1: To implement the concept of thermodynamics.

CO2: Understand the concept of Quantum chemistry and Chemical kinetics.

CO3: To apply theoretical concepts of thermodynamics, electrochemistry in determination of heat of solutions, solubility products, mean ionic activity and effect of substituents on dissociation constant.

CO4: To link symmetry to the shapes of molecules and understand bonding, to study reaction mechanisms of complexes.

CO5: To understand the concept outlining the feasibility of a reaction and its possible pathway.

CO6: The students will be able to perform experimental chemistry with enough skill, prepare samples, understand methodologies and interpret experimental data.

CO7: To develop the skill of determination of metals in alloys and mixtures.

CO8: To inculcate aptitude for experimentation and treatment of data in learners.

CO9: To recapitulate the theory of the ionic strength, phase rule, chemical kinetics for experimental determinations.

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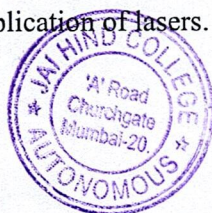JAI HIND COLLEGE

CO10: To apply static method for determination of empirical formula of the complex.

CO11: To determine polar plots of atomic orbitals of hydrogen atom.

CO12: To develop knowledge in finding rate constant of decomposition reaction.

CO13: To discuss new name reaction and enol enolate chemistry along with its application.

CO14: To solve spectral problems merging all spectroscopic technique together.

CO15: To identify the application of Chromatography, Thermal methods, automation in chemical analysis, Surface Analytical & Electroanalytical methods

CO16: To explain the concept and instrumentation of chromatography, thermal methods, automation in chemical analysis, surface analytical & electroanalytical methods.

CO17: To discuss the theory and derivation of electrochemistry.

CO18: To identify different characterization techniques of polymers.

CO19: To explain bonding in simple molecules with Valence bond theory, Molecular orbital theory

CO20: To explain the synthesis of metal nanoparticles.

CO21: To assess physical properties of materials and make decision on their application in energy conversion devices.

CO22: To describe the principles of Scanning Electron Microscope (SEM) and its use in characterizing nanoparticles.

CO23: To identify application of nanotechnology in environmental science and biomedical field.

CO24: To understand a general definition of research design.

CO25: To familiar with how to write a good introduction to educational research study and the components that comprise such an introduction.

CO26: To identify a research problem stated in a study.

CO27: To distinguish a purpose statement, a research question or hypothesis and a research objective.

CO28: To understand advanced concept of Metals and alloys.

CO29: To introduce the mechanical properties of solid materials.

CO30: To introduce the concept, working and application of lasers.

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CO31: To discuss the concept and application of nuclear chemistry.

CO32: To explain the growth of single crystal, defect and atomic diffusion in solids.

CO33: To describe the concept of Advanced Bioinorganic Chemistry & reactivity of chemical species.

CO34: To explain MOT stereochemistry of coordination complexes.

CO35: To calculate magnetic moment and magnetic susceptibility.

CO36: To summarise the role of metal ions in biological electron transfer processes.

CO37: To explain reactivity of chemical species with examples.

CO38: To explain bonding in simple molecules with Valence bond theory, Molecular orbital theory

CO39: To understand the principles and theories of rotational, vibrational Raman, ESR, Mossbauer and NQR spectroscopy.

CO40: To apply approximation methods for solving complex problems.

CO41: To describe bonding in simple molecules using MOT and VBT.

CO42: To interpret rotational, vibrational Raman, ESR, Mossbauer and NQR spectra of different molecules.

CO43: To establish various characterization techniques for nanomaterials and introduce different applications of nanotechnology in the field of energy.

CO44: To explain the synthesis of metal nanoparticles.

CO45: To assess physical properties of materials and make decision on their application in energy conversion devices.

CO46: To describe the principles of Scanning Electron Microscope (SEM) and its use in characterizing nanoparticles.

CO47: To identify the application of nanotechnology in environmental science and biomedical fields.

CO48: To identify a research problem stated in a study.

CO49: To distinguish a purpose statement, a research question or hypothesis and a research objective.

CO50: To identify mechanical properties of solid materials.

CO51: To classify different laser and its application in Chemistry.

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CO52: To describe the concept and application of nuclear chemistry.

CO53: To understand advanced techniques of organic reaction like photochemistry, electro organic, pericyclic.

CO54: To understand the reaction and mechanism of organic products.

CO55: To understand stereochemistry of cycloalkanes and fused ring.

CO56: To predict correct stereochemical conformations of cycloalkanes and fused ring.

CO57: To explain the concept of advanced organic reactions.

CO58: To understand the mechanism of name reactions.

CO59: To illustrate the application of radicals in organic chemistry.

CO60: To understand the application of metal and non-metals in organic synthesis.

CO61: To explain mechanism of novel reactions.

CO62: To discuss the importance of radicals in organic reactions.

CO63: To illustrate the application of metals and non-metals in organic synthesis.

CO64: To elaborate the chemistry of natural products.

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