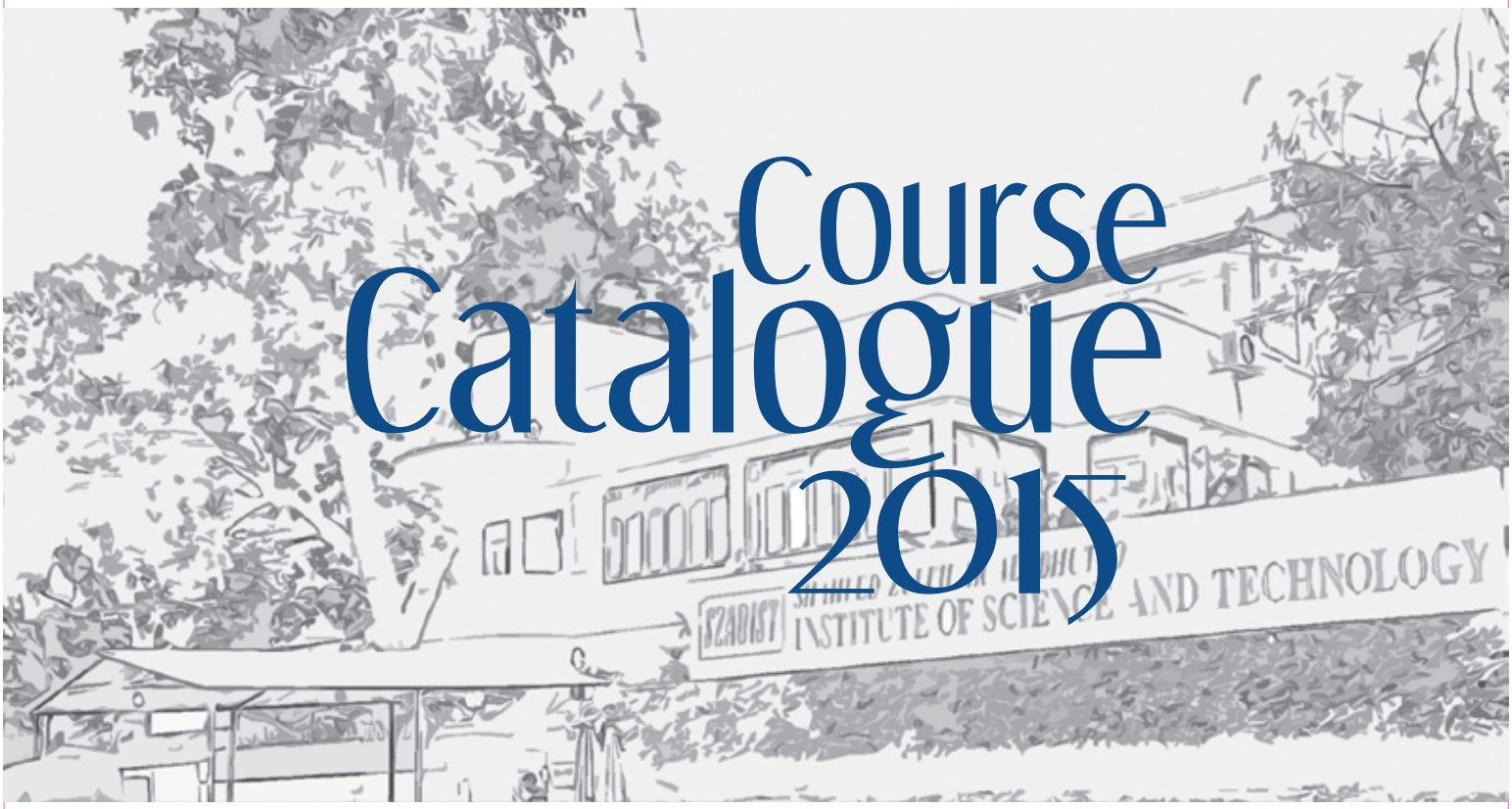
SZABIST

Shaheed Zulfikar Ali Bhutto Institute of Science & Technology

KARACHI CAMPUS

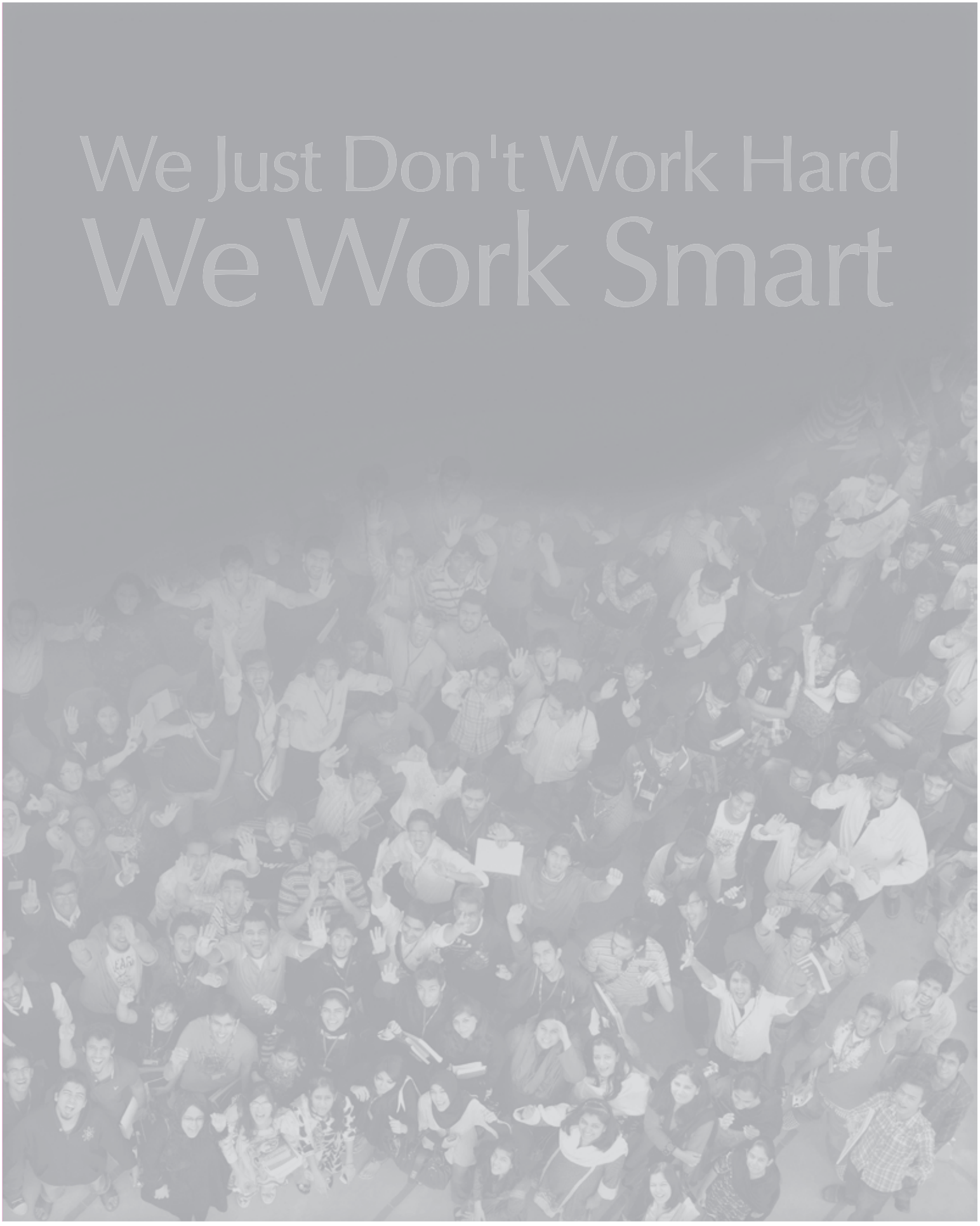
Discover Yourself

Course Catalogue 2015



www.szabist.edu.pk

We Just Don't Work Hard
We Work Smart



Course Catalogue 2015

The Vision

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology shall be a world class institute recognized globally for its excellence in education, scholarship in research and distinction in service.

The Mission

The Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST) has been established with the objectives of producing highly qualified, scientific and technical personnel to meet the country's requirements; of conducting state-of-the-art scientific and technological research and development in support of the private and public sector; of providing hi-tech scientific and technological assistance to the Pakistan industry to enable it to compete with the world industries in global trading; of providing highly trained scientific and technological personnel to be able to attract the growth of high-tech industries and foreign and Pakistani investment; and of providing a sound socio-economic and scientific base and infrastructure to Pakistan to be able to meet the economic and technological challenges of the 21st century.

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About SZABIST

Shaheed Mohtarma Benazir Bhutto, the first woman Prime Minister of a Muslim country and twice elected Prime Minister of Pakistan founded SZABIST in 1989 to realize the vision of her father, former elected prime minister of Pakistan, Shaheed Zulfikar Ali Bhutto. In his speech at the inauguration ceremony of the Karachi Nuclear Power Plant in 1972, he stated:

"We will give science and technology requirements the highest priority and our attention. To implement any program of scientific and technological development, the country needs to train scientific manpower. In this, the schools, colleges and universities have to play their role. I desire that vast number of people of Pakistan should acquire technological skills. I want first-class science in Pakistan because nothing less is acceptable. And I wish Pakistan to be increasingly self-reliant in all aspects of technology".

It was in pursuit of this dream that SZABIST was established.

In its first academic year, 1995, SZABIST commenced studies by offering only two degrees i.e. MS in Software Engineering and Master of Business Administration with only 96 students. Since then, SZABIST has made tremendous progress and now offers programs in the disciplines of Management Sciences, Computer Science, Social Sciences, Media Sciences, Law, Mechatronics Engineering, Biosciences, Public Health and Education.

SZABIST has five full-fledged university campuses; Karachi, Islamabad, Larkana, Hyderabad and Dubai, which makes it the only degree granting institution in Pakistan with an international presence.

Pursuit of research is an integral part any educational institutions' life. In this regard, SZABIST pioneered Pakistan's first online research journal, Journal of Independent Studies and Research (JISR) in 2003. In 2009, SZABIST re-dedicated itself to its mission of research and development in science and technology with a number of new initiatives. These are focused on realizing the country's research potential, and developing long-term self-sufficiency in critical areas of energy, biomedicine, and technology.

Reflecting its dedication to excellence, SZABIST continues to grow and prosper as a top ranked institution of higher education. This is a singular achievement for an institution, which relies solely on its own resources, and it certainly augurs well for its future.

A Message by the Chancellor

It gives me great pleasure to welcome you all to Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST); a multidisciplinary institution with a variety of programs catering to the academic, social, professional, and creative needs of its students.

Since inception, SZABIST is recognized for providing a holistic and market-relevant tertiary level education. Further to meet the ever changing market demand the courses offered are regularly revised and updated according to the requirement.

In order to streamline the contents of the offered courses and make them fully compatible with the Higher Education Commission's (HEC's) guidelines, the Course Catalogue 2015 has been provided to all students for ease of reference. The document entails detailed and standardized description for courses being offered in Management Sciences, Computer Science, Social Sciences, Media Sciences, Mechatronics, Biosciences, Public Health, Education and Law programs.

The Catalogue has been designed to guide students in understanding the respective degree plans and completion requirements, and independently selecting the elective courses. In addition, the Course Catalogue will assist Program Managers in guiding students to successfully and smoothly complete their respective degree requirements

I wish the students the very best for their academic life at SZABIST and urge them to follow the SZABIST motto, "Discover Yourself" to become the leaders of tomorrow.

Dr. Azra Fazal Pechuho
Chancellor,
SZABIST

A Message by the Acting President

I am extremely pleased to welcome you all to SZABIST, the third highest ranked university in the category of Business across Pakistan, with a tradition of producing high quality corporate leaders.

I congratulate you on being selected to join SZABIST for your higher education where the focus is on the academic life that will prepare you for the challenges of the 21st century. You will be imparted with personally enriching, market relevant, and professionally beneficial skills.

For your guidance a comprehensive Course Catalogue 2015 with streamlined academic curricula has been produced. This Catalogue is one more indicator of SZABIST's growth into a mature institution as it now offers twenty four diversified programs in disciplines of Management Sciences, Computer Science, Social Sciences, Media Sciences, Mechatronics Engineering, Biosciences, Public Health, Education and its International Programs including LLB (University of London, UK) and BA (Hons.) in Business Studies in collaboration with University of South Wales, UK.

At SZABIST, you will have the benefit of having the best quality Faculty, very supportive Academics and Administration staff and a safe, comfortable environment with latest equipment in the laboratories.

I thank the staff members of Institutional Research Department, in particular Ms. Faryal Shahabuddin for collaborating with the Program Managers to prepare this Catalogue and the Marketing Department, especially Mr. Bashir Ahmad, for his work in the design of the Catalogue.

I wish all the students great success in their educational endeavors at SZABIST.

Ms. Shahnaz Wazir Ali
Acting President,
SZABIST

Welcome Message by the Vice President Administration & Finance

Welcome to SZABIST and congratulations on being selected at one of the highest ranked Higher Education Institutes of Pakistan. This Course Catalogue is a compendium of the courses being offered at SZABIST that will stir you to consider the discipline best suited to your requirements.

I am confident that it will serve as a useful resource to use and the key to the renowned faculty at SZABIST through whose courses you will develop the intellectual knowledge and skills with a trained mind, broadened knowledge and a deeper understanding of the continued joy of disciplined learning.

We at SZABIST provide you all the facilities to help you prepare for the marathon which will begin after you graduate. Focus on your goals and study hard to reach where you want to be.

Best wishes for a successful year!

Ms. Nasreen Haque
Vice President (Administration & Finance)
SZABIST

Preface

The Course Catalogue provides a platform for the students of SZABIST to avail in advance information relevant to their respective program course requirements.

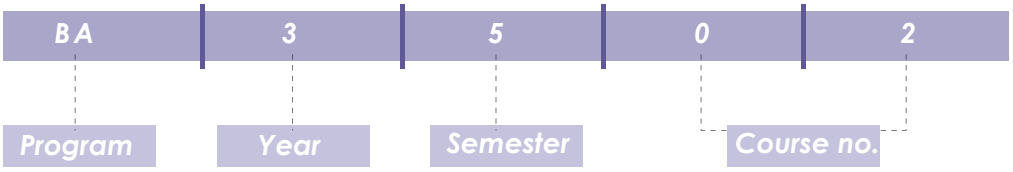
This Catalogue covers the core and/or compulsory courses for all the programs, offered in the following seven faculties:

- **Management Sciences**
- **Computer Sciences**
- **Social Sciences**
- **Media Sciences**
- **Mechatronics Engineering**
- **Biosciences**
- **Education**
- **External Programs**

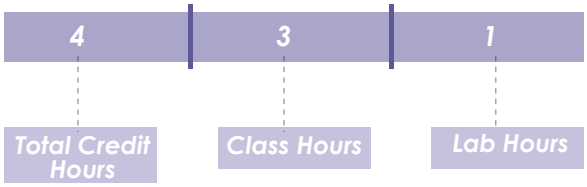
It provides information on the course credits, prerequisites (if any), course descriptions, and finally the equivalent courses. The students should consult the catalogue before registering for courses on ZabDesk.

Regardless of the academic program, this Catalogue will serve as a guidebook for students throughout their educational term at SZABIST. With the course descriptions, course titles and prerequisites mentioned, the student would easily be able to plan their semesters beforehand.[1]

The courses in each program have been identified by their respective course codes. Therefore, the following course code illustration would assist the students in identifying the courses for a particular semester.



In addition, the composition of the Course Credit Hours is as follows:



1 Please note that in case of Law Program and a few courses in other programs, identification of courses for a particular semester by their codes may not apply.

Acronyms

BA	***Business Administration***
BABS	***Bachelor of Arts in Business Administration***
BBA	***Bachelor of Business Administration***
BEME	***Bachelor of Engineering in Mechatronics***
B&F	***Banking & Finance***
BMS	***Bachelor of Media Science***
BS (Bioscience)	***Bachelor of Science in Biosciences***
BSCS	***Bachelor of Science in Computer Science***
BSSS	***Bachelor of Science in Social Sciences***
EMBA	***Executive Master of Business Administration***
HEC	***Higher Education Commission of Pakistan***
IR	***Institutional Research***
IT	***Information Technology***
MBA	***Master of Business Administration***
MD	***Media***
ME	***Mechatronics Engineering***
MPH	***Master of Public Health***
MPM	***Master in Project Management***
MS	***Master of Science***
MS (Bioscience)	***Master of Science in Biosciences***
MSCS	***Master of Science in Computer Science***
MSELM	***Master of Science in Educational Leadership and Management***
MSMS	***Master of Science in Management Sciences***
MSPM	***Master of Science in Project Management***
MSSS	***Master of Science in Social Science***
PhD	***Doctor of Philosophy***
SE	***Software Engineering***
SS	***Social Science***

Schematic Illustration

Given below is an explanation of the various elements of the course catalogue.

This is the duration of a particular course, divided into lecture plus lab hours.

This is the title for the course.

Course Name	Analysis of Financial Statements	***Credit Hours***	***3*** (3,0)

A code has been assigned to each of the respective course for identification.

Course Code	BA5132	***Prerequisite(s)***	BA5401

This is the course that a student is required to pass before taking this course.

Course Description

This course includes detailed analysis of Financial Statements of Manufacturing and Services Sector. Additional topics include cash flow statement, and statement of owner's equity; accounting principles; financial analysis and reporting process. Further, the course includes ratio analysis, trend analysis, and horizontal and vertical analysis, operating and financial leverage and their impact on a firm's performance, efficient market hypothesis, the capital asset pricing model (CAPM), inventory management process, FIFO/LIFO methods of costing calculate depreciation by applying different methods, and bond and stock valuation techniques.

This contains the topics that would be covered in the course.

Equivalent Course(s) BA449, BA549

These courses are considered similar, and earn equal credit hours to the given course and can be taken by the student, with approval from the respective Program Manager.


Department of
Management
Sciences

1.1 Bachelor

1.1.1 Bachelor of Business Administration (BBA)

Students enrolled in the Bachelor of Business Administration (BBA) program are required to complete 46 courses with a 6 credit hour Research Project within seven (7) years. The break-up of 46 courses (144 credit hours) is as follows:

- *40 Compulsory Courses (120 Credit Hours)*
- *2 Optional Courses[1] (6 Credit Hours)*
- *4 Elective[2] Courses (12 Credit Hours)*
- *1 Research Project (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BA 1101	Introduction to Accounting	4
BA 1105	English Writing Skills	4
BA 1106	Islamiat and Pakistan Studies/Humanities	4
BA 1108	IT in Business	5
BA 1109	Personal Management and Communication	5
BA 1204	Maths for Business	5
	Spring Semester	
BA 1102	Microeconomics	6
BA 1201	Financial Accounting	6
BA 1203	Management Principles	6
BA 1206	Oral Communication and Presentation Skills	6
BA 1211	Logic and Critical Thinking	7
BA 2311	Business Statistics	7
	Second Year	
	Fall Semester	
BA 1202	Macroeconomics	7
BA 2301	Introduction to Business Finance	7
BA 2303	Marketing Principles	8
BA 2307	Sociology	8
BA 2312	Human Behavior	8
BA 2408	Cost Accounting	8
	Spring Semester	
BA 2401	Money and Banking	9
BA 2402	Retail Management	9
BA 2403	Business Ethics	9
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1 List of Optional Courses is given in Annexure A.
2 List of Electives is given in Annexure B.

Course Code	Course Title	Page #
	Third Year	
	Fall Semester	
BA 3501	Financial Markets and Institutions	11
BA 3508	Media Management	11
BA 3605	Statistical Inference	11
BA 4706	Development Economics	12
BA 4801	Law and Taxation	12
BA xxxx	Optional-I (As offered by Campus)	213
	Spring Semester	
BA 3601	Financial Management	12
BA 3602	Marketing Management	13
BA 3607	Operations Management	13
BA 3603	Business Research Methods	13
BA 4804	Human Resource Management	14
BA xxxx	Optional-II (As offered by Campus)	213
	Fourth Year	
	Fall Semester	
BA 3505	Quantitative Skills	14
BA 4704	Management Information Systems	14
BA 4705	Services Marketing	15
BA 4814	Project Management	15
BA 4xxx	Elective-I	214 & 215
BA 4xxx	Elective-II	214 & 215
	Spring Semester	
BA 3502	Entrepreneurship	15
BA 3609	Pakistan Economy	16
BA 4807	Research Project	16
BA 4xxx	Elective-III	214 & 215
BA 4xxx	Elective-IV	214 & 215

All courses may not be offered every year. Alternate courses may be substituted as and when required.

1.1.1 Bachelor of Business Administration (BBA)

The description of 40 compulsory courses and the Research Project, as required for the BBA degree, is given below:

Course Name	Introduction to Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 1101	**Prerequisite(s)**	None

Course Description	This course covers the purpose and nature of accounting, forms of business enterprises, accounting information users, Generally Accepted Accounting Principles, accounting equation, accounting process, accounting cycle, ledgers and entries, accounting for receivables, inventory and depreciation.
Equivalent Course(s)	None

Course Name	English Writing Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 1105	**Prerequisite(s)**	None

Course Description	The course covers comprehending problems and statements, developing arguments, and communicating ideas clearly and concisely. It also focuses on grammar, forms of punctuation, forms of speech, sentence and paragraph construction, composition, comprehension, writing styles, presentations, verbal communication skills, formal and informal presentations, interactive discussions, and role-playing.
Equivalent Course(s)	CSC 1102, MD 1122, SS 1116, BA 5317, BIO 1111

Course Name	Islamiat and Pakistan Studies/Humanities	**Credit Hours**	**3** (3,0)
Course Code	BA 1106	**Prerequisite(s)**	None

Course Description	This course provides an introduction to the history of Pakistan with reference to pre- and post-independence eras, and the contribution of different governments in nation's social, economic and legislative development over years. The second part of the course focuses on Islam and the present-day Muslim world.
Equivalent Course(s)	CSC 1105, MD 2402, SS 1109, BIO 2303

1.1.1 Bachelor of Business Administration (BBA)

Course Name	IT in Business	**Credit Hours**	**3** (3,0)
Course Code	BA 1108	**Prerequisite(s)**	None

Course Description

This course deals with the introduction to information technology, understanding the computer system, computer hardware, operating system, application software, programming languages, files and data basics, data communication, networking basics, computer graphics, computer security and controls, MS Word, MS Excel, MS Access, MS Power Point, MS Project and Databases.

Equivalent Course(s) BA 1103, CSC 1104, BIO 1104

Course Name	Personal Management and Communication	**Credit Hours**	**3** (3,0)
Course Code	BA 1109	**Prerequisite(s)**	None

Course Description

This course teaches students to discover themselves and make positive changes to achieve greater effectiveness at work, and in personal and interpersonal relationship. Students learn the combination of factors such as personality, communication style, self-esteem, time management, conflict, negotiation and others that impact their personal effectiveness. They also learn methods, and techniques required to work effectively and confidently with others, using time management, negotiation and presentation skills with a positive mindset.

Equivalent Course(s) BA 1104, BA 5311

Course Name	Maths for Business	**Credit Hours**	**3** (3,0)
Course Code	BA 1204	**Prerequisite(s)**	None

Course Description

The aim of this course is to prepare students to solve economic and managerial problem through mathematical concepts. This course is covered in four parts, first part is based on systems of linear equations and its solutions provide preliminary concept, construction of linear equations, graphical interpretation of data, systems of linear equations and solutions, introduction to matrix algebra, determinants, Cramer's rule & inverse method to solve system of linear equations. The second part develops the concept of linear and nonlinear functions, and their application, linear programming. The third part provides mathematics for finance, which covers simple, and compound interest rate computations and present and future annuity calculations. The last part of the course provides differentiation of basic functions, higher order differentiation, optimization of functions, definite and indefinite integration, applications of integration.

Equivalent Course(s) BIO 1107

1.1.1 Bachelor of Business Administration (BBA)

Course Name	Microeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 1102	**Prerequisite(s)**	None
Course Description	Microeconomics studies how the individual parts of the economy, the households and the firms, make decisions to allocate limited resources. This course is based on a comprehensive study of the market structures, product markets and resource markets. It also deals with application of demand and supply, cost analysis and factors of production.		
Equivalent Course(s)	SS 1105, BA 5302		

Course Name	Financial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 1201	**Prerequisite(s)**	BA 1101
Course Description	This course includes accounting for merchandise business, classified balance sheet, simple and multiple income statement, design of accounting system, accounts receivable, notes receivable, inventories, cost of goods sold, liabilities, corporation and measuring cash flow statements. Also, MS Excel is used and necessary accounting software is introduced.		
Equivalent Course(s)	BA 5301		

Course Name	Management Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 1203	**Prerequisite(s)**	None
Course Description	This course introduces the basic concepts of management, evolution and emergence of management thought, management function, planning concepts, decision-making, organizing, staffing, leading, controlling, and future of management and society.		
Equivalent Course(s)	BA 5303, BA 5419		

Course Name	Oral Communication and Presentation Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 1206	**Prerequisite(s)**	BA 1105
Course Description	In this course student' learns the principles of a good presentation and has the opportunity to practice and experience these principles during this highly participative course. The course explores in detail, both verbal and non-verbal communication characteristics, and the importance of body-language expressions. Students are challenged through participative exercises with focus on active listening and observation techniques, that aim to make them competent in all facets of effective speech communication.		
Equivalent Course(s)	CSC 2101, ME 1101		

Course Name	Logic and Critical Thinking	**Credit Hours**	**3** (3,0)
Course Code	BA 1211	**Prerequisite(s)**	BA 1105

Course Description

The course covers scope and laws of logic, deduction and induction, inferences, forms of discourse, emotive words, kinds of disputes and disagreements, rules and fallacies, classical (Aristotelian) logic, standard-form categorical syllogisms and testing, uniform translation, dilemma and enthymemes, and Mills' Methods of scientific investigation. Critical thinking skills and techniques are also introduced.

Equivalent Course(s) BA 5503

Course Name	Business Statistics	**Credit Hours**	**3** (3,0)
Course Code	BA 2311	**Prerequisite(s)**	BA 1204

Course Description

This basic course aims to enhance the capacity of the students to solve the research problems and by focusing on four areas; introduction to statistics, types of data, frequency distribution, graphs and charts, measures of central tendency, and measures of dispersion; concept of curve fitting techniques, regression analysis, correlation analysis, time series analysis; and index numbers, counting techniques and MS Excel tools for statistics using add-on analysis tool pack.

Equivalent Course(s) BA 5305, BA 2305, BIO 1208

Course Name	Macroeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 1202	**Prerequisite(s)**	BA 1102

Course Description

This course introduces key economic indicators, role of government in an economy, measurement of gross domestic product, components of aggregate demand, consumption function and Keynesian multiplier, investment function, government intervention through monetary and fiscal policies, impact of government intervention on economic activity, inflation and unemployment, aggregate supply and demand, balance of payments and trade, public finance, growth, and development.

Equivalent Course(s) BA 5402, SS 1205

Course Name	Introduction to Business Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 2301	**Prerequisite(s)**	BA 1201

Course Description

This course covers the concepts of business environment, forms of business organization, overview of financial environment, cost markets, institutions and interest rates, analyses of financial statements, time value of money, sources of short-term and long-term finance, break even analysis, working capital management, valuation of financial securities (debt/equity) and introduction to capital budgeting.

Equivalent Course(s) BA 5401

Course Name	Marketing Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 2303	**Prerequisite(s)**	BA 1203

Course Description

This course introduces the basic concepts of marketing, marketing environment, planning and research, market segmentation and targeting, consumer behavior, industrial marketing, product planning, product-mix, pricing, distribution, placement, promotional mix, and marketing in global scenarios.

Equivalent Course(s) BA 5404

Course Name	Sociology	**Credit Hours**	**3** (3,0)
Course Code	BA 2307	**Prerequisite(s)**	None

Course Description

The course focuses on three central themes; social change, social inequality, and social harmony versus conflict. It combines selective theoretical texts with case studies to understand the mechanisms and institutions that can trigger, foster, sustain, or undermine each of the three processes. The course covers the work of major sociological thinkers and the influence of sociology on modernization, race, citizenship, culture, gender, society, and economic development.

Equivalent Course(s) BA 2306, MD 1104, SS 2307

Course Name	Human Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 2312	**Prerequisite(s)**	None

Course Description

This course covers the basics of psychological features of human behavior with applications in real life situations. In addition, the aspects of personal growth and understanding are also covered.

Equivalent Course(s) MD 2424, BA 2306, SS 2306

Course Name	Cost Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 2408	**Prerequisite(s)**	BA 1201

Course Description

This course focuses on cost allocation, process costing systems and spoilage. Specific topics include relevancy of revenues and costs, cost allocation decisions (joint and byproducts), process costing systems, Factory overhead applied, Standard Costing: Setting of Standards, Analysis of Variance and Controlling and Costing Material.

Equivalent Course(s) BA 5411

Course Name	Money and Banking	**Credit Hours**	**3** (3,0)
Course Code	BA 2401	**Prerequisite(s)**	BA 1202

Course Description

This course deals with the history, evolution and function of money. The course essentially delves into the following key topics: monetary policies which are aligned in accordance to the monetary systems, responsibilities of SBP as central bank, controlling money supply in the economy, operations and functions of commercial banks, role of other financial intermediaries, key financial instruments available in the market. In addition, commodity markets, hedging instruments, different functions of treasury, corporate and consumer banking department is also introduced.

Equivalent Course(s) None

Course Name	Retail Management	**Credit Hours**	**3** (3,0)
Course Code	BA 2402	**Prerequisite(s)**	BA 2303

Course Description

This course addresses retail management at two levels: the macro- level (the role of the retailing in the business industry), and the micro-level (which focuses on the functionality of a retail business). The course provides a preview of quality management, resources management, business communication, retail marketing and advertising, consumer behavior, inventory management and accounting, and human resource management.

Equivalent Course(s) BA 5228, Marketing Elective

Course Name	Business Ethics	**Credit Hours**	**3** (3,0)
Course Code	BA 2403	**Prerequisite(s)**	BA 1203

Course Description

This course introduces contemporary and controversial ethical issues facing the business community. Topics include: moral reasoning, moral dilemmas, law and morality, equity, justice and fairness, ethical standards, and moral development. Upon completion, students would be able to demonstrate an understanding of their moral responsibilities and obligations as members of the workforce and society.

Equivalent Course(s) None

Course Name	Business and Electronic Communication	**Credit Hours**	**3** (3,0)
Course Code	BA 2406	**Prerequisite(s)**	BA 1206

Course Description

This introductory course teaches students to communicate at both personal and professional levels. In addition, it develops competency in all forms of communication. This course introduces communication theories and strategies for a variety of business situations. Using a developmental approach to business communication, the course examines methods for organizing ideas, analyzing data, addressing diverse concerns, presenting information, and developing a professional communication style.

Equivalent Course(s) BA 5304, BA 5418

Course Name	Organizational Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 3504	**Prerequisite(s)**	BA 2312

Course Description

The course covers the subject matter on three levels: individual, group and interpersonal, and organizational. At the individual level, the focus is to examine individual behavior and differences, learning, perception, personality, motivation, and stress. The group/ interpersonal level covers group and inter-group behavior, creativity, and team decision-making. It also includes power, conflict, leadership, and communication. At the organizational level, it reviews the basics of organizational culture, organizational change and development, structure, design, employment relationship, and career management.

Equivalent Course(s) BA 5207

Course Name	Consumer Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 3507	**Prerequisite(s)**	BA 2303

Course Description

This course examines in detail, the complex behavioral processes which determine consumer actions and analyzes the decision patterns in a variety of situations with a special reference to individual and group influences. It is designed to cover contemporary concepts in consumer behavior, objectives, consumer and market segmentation, environmental influence, individual determinants, and consumer buying behavior.

Equivalent Course(s) BA 5123, BE 484

Course Name	Financial Markets and Institutions	**Credit Hours**	**3** (3,0)
Course Code	BA 3501	**Prerequisite(s)**	BA 2401

Course Description

A theoretical course that focuses on financial markets includes bond, equity and the effect of the economy upon the markets when funds are injected into the economic system through financial intermediaries. Topics include; interest rates the flow of funds, capital markets, debt market, money markets and their relationship with changing financial services and regulatory agencies. Other topics include roles of banks, finance companies, insurance companies and fund management companies. The study of Financial Market and Institutions (FMI) is one of the most important areas for finance and business students. The course has been designed to enable the students to understand the existing setup of financial markets, instruments and institutions.

Equivalent Course(s) BA 5135

Course Name	Media Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3508	**Prerequisite(s)**	BA 2303

Course Description

The course introduces basic concepts of public relations and how it is different from promotional tools. It discusses various public relations tools, dimensions, and disciplines. It also addresses issues emerging out of modern and emerging communication media and provides a broader perspective of media in Pakistan describing its characteristics and effective ways to interact with them. The course concludes with a brief discussion on event management with an overview of importance of communications during crisis situations.

Equivalent Course(s) None

Course Name	Statistical Inference	**Credit Hours**	**3** (3,0)
Course Code	BA 3605	**Prerequisite(s)**	BA 2311

Course Description

The course covers probability; probability distributions; Binomial, Poisson, Hyper-geometric, Chi Square distribution, Normal distribution, Sampling Distribution; estimation; hypothesis testing; one-population test, two-populations test and analysis of variance; and computer applications in statistics.

Equivalent Course(s) BA 5405, SS 2418

Course Name	Development Economics	**Credit Hours**	**3** (3,0)
Course Code	BA 4706	**Prerequisite(s)**	BA 1202

Course Description	This course defines development and identifies contemporary issues in development. It also discusses the theories of development, and relates them to the Pakistani scenario and the role of the international community in the development process. In addition, it also identifies and analyzes the problems of the poor in Pakistan, in particular, and of the developing countries, in general, it helps students to critically analyze contemporary domestic and international economic policies and determine whether such policies improve or worsen the condition of the poor.
Equivalent Course(s)	SS 1163, SS 4147, SS 4284

Course Name	Law and Taxation	**Credit Hours**	**3** (3,0)
Course Code	BA 4801	**Prerequisite(s)**	BA 1211

Course Description	The course covers process of legislation in Pakistan, Contract Act, Law of Sale of Goods, Partnership Law and Company laws, Sales Tax, Income Tax Law and Intellectual Property Laws. This course identifies the legal rights of persons in case of nonperformance of contracts, it also identifies the taxation system as well as kinds of taxes in Pakistan. Furthermore it also identifies the intellectual property rights in Pakistan.
Equivalent Course(s)	None

Course Name	Financial Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3601	**Prerequisite(s)**	BA 2301

Course Description	Building upon the concepts already laid down in its pre-requisite, financial management helps students in exploring the depths of the relatively complex aspects of the financial world, with prime focus on the present value and opportunity cost of capital. This course covers topics such as nature, scope and function of financial decision areas, objectives of financial management, financial forecasting, working capital management, valuation of stocks, valuation of fixed income securities, project cash flow analysis, capital budgeting and decision making, determination of the required rate of return via asset pricing models, dividend policy, debt policy, introduction to financial risk management and derivatives and role of financial markets in Pakistan.
Equivalent Course(s)	BA 5105

Course Name	Marketing Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3602	**Prerequisite(s)**	BA 2303

Course Description

The course introduces the concept of customer and market-driven management. This course covers organizations' external and internal environment, strengths, weaknesses, opportunities and threats, marketing information system, buyer behavior analysis, segmenting, targeting and positioning strategies, product and pricing strategies, an in-depth study of strategy building by organizations with the help of case studies and a practical, hands-on learning experience of marketing management through close observations of marketing management at different levels in marketing channels.

Equivalent Course(s) BA 5106

Course Name	Operations Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3607	**Prerequisite(s)**	BA 1203

Course Description

This course introduces the concepts of production and operations management. Topics covered represent a blend of concepts from industrial engineering, cost accounting, general management, quantitative methods and statistics. The course topics include some operations and strategic issues such as applied forecasting, aggregate planning, scheduling, shop floor control, total quality management, inventory management, and facility layout and project management. In addition, topics also include the complex understanding of services operations management with the help of real life case studies, processes and methodologies applied worldwide.

Equivalent Course(s) None

Course Name	Business Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BA 3603	**Prerequisite(s)**	BA 3605

Course Description

This course provides the understanding of basic business research methods in the field of marketing, human resource management, and finance. The subject encompasses the theory and practice of research; and covers concepts, elements, and process of conducting business research. It builds the specific conceptual knowledge regarding identification and elicitation of research problem, development of research proposal, reviewing the literature, using suitable research methodology, data collection and analysis tools and writing research report. The focus of the course is on basic concept building and relating the research to real life business problems.

Equivalent Course(s) SS 3504

Course Name	Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 4804	**Prerequisite(s)**	BA 3504

Course Description

This course examines the role of the human resource professional, as a strategic partner, in managing contemporary organizations. The course introduces concepts, issues and practices in human resource management such as Human Resource planning, job design and analysis, recruitment and selection, training and development, performance appraisal, compensation and benefit management, career planning and development, employee relations, appraising the implications of legal and global environments and analyzing the current issues (such as diversity training, sexual harassment policies, rising benefit costs), and best practices of employers of choice.

Equivalent Course(s) BA 5205

Course Name	Quantitative Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 3505	**Prerequisite(s)**	BA 1204

Course Description

The course is an introduction to quantitative skills essentially required to business students. The course consists of several parts. First is related to arithmetic techniques like: numbers, exponents and roots, ratio and proportion, averages etc. and their usage in solving common problems. The second part consists of algebra, equations, and their applications in solving business problems. The third part comprises of coordinate geometry and combination of above parts. The fourth part covers graphical analysis and interpretation of the data. The fifth and last part consists of data sufficiency problems related to arithmetic, algebra and geometry.

Equivalent Course(s) None

Course Name	Management Information Systems	**Credit Hours**	**3** (3,0)
Course Code	BA 4704	**Prerequisite(s)**	BA 1108

Course Description

This course covers different information technology applications in business for efficient management of business operations by providing support to decision makers for strategic business decisions. The course examines various corporate frameworks for information management and their utility.

Equivalent Course(s) BA 5403

Course Name	Services Marketing	**Credit Hours**	**3** (3,0)
Course Code	BA 4705	**Prerequisite(s)**	BA 3602

Course Description

The course studies the difference between marketing mix of tangible offerings and that of services; describing applications of services marketing; developing services marketing plan and practice services marketing, and developing entrepreneurial mindset in a service industry. The course focuses on marketing services through 7Ps, whether service is the primary business or a supplementary to a product.

Equivalent Course(s) BA 5129, Marketing Elective

Course Name	Project Management	**Credit Hours**	**3** (3,0)
Course Code	BA 4814	**Prerequisite(s)**	BA 3607

Course Description

The course is split into three parts: Project Initiation, Project Implementation, and Project Termination. Topics include: definition of a project, importance of project management, project life cycle, types of projects, project management and related industries, project initiation and selection, project manager, project organization, project planning, conflicts and negotiation, project implementation, budgeting and cost estimation, scheduling, resource allocation, monitoring and information systems, project control, project termination, and project auditing. Furthermore, the course covers project feasibility study, format of feasibility study, contents of feasibility study, and making accurate estimates.

Equivalent Course(s) Finance Elective

Course Name	Entrepreneurship	**Credit Hours**	**3** (3,0)
Course Code	BA 3502	**Prerequisite(s)**	BA 1203

Course Description

This course focuses on ways in which entrepreneurs recognize opportunities, generate ideas, and organize resources to plan and run successful ventures that enable them to achieve their goals. Students are required to create an entrepreneurial venture as part of a practical learning activity. Through this hands-on experience, case studies, class discussions and text book readings students will have an opportunity to develop the values, traits, and skills most often associated with successful entrepreneurs.

Equivalent Course(s) BA 5406, BA 4859, BA 3517

Course Name	Pakistan Economy	**Credit Hours**	**3** (3,0)
Course Code	BA 3609	**Prerequisite(s)**	BA 4706

Course Description

This course is designed to provide students with critical information and knowledge about Pakistan economic environment. Starting with the historical background, covering topics such as agriculture, industry, public finance and social sector development. The course also reviews government interventions, like fiscal policy, monetary policy, trade policy, and income policies. Also included in this course are topics like institutional reforms, deregulation, privatization, denationalization, globalization and other policies/factors that affect business environment in Pakistan. The course ends with discussion on challenges ahead for the Pakistan Economy in the regional and global perspectives.

Equivalent Course(s) SS 4249

Course Name	Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 4807	**Prerequisite(s)**	BA 3603

Course Description

The research project course is the application of the theory and concepts learned across various courses in BBA program. It is a team-based project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) None

1.1.2 Bachelor of Arts in Business Studies (BABS)

Students enrolled in the Bachelor of Arts in Business Studies (BABS) (Honors) program are required to complete 27 courses with 81 Credit Hours. Upon completion of the required courses at SZABIST, students can proceed for the Final Year to the University of South Wales to obtain their Bachelor (Honors) degree. For any reason, if the students do not proceed to University of South Wales they can obtain BABS degree from SZABIST by completing additional 19 courses and a Research Project. The break-up of the courses offered is given below:

- *46 Compulsory Courses (138 Credit Hours)*
- *1 Research Project (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BA 1101	Introduction to Accounting	19
BA 1102	Microeconomics	19
BA 1103	Introduction to Computers	19
BA 1104	Personal Management	19
BA 1105	English Writing Skills	20
BA 1204	Maths for Business	20
	Spring Semester	
BA 1201	Financial Accounting	20
BA 1202	Macroeconomics	21
BA 1203	Management Principles	21
BA 1206	Oral Communication and Presentation Skills	21
BA 2305	Statistics and Mathematics for Business	21
BA 3604	Computer Programming for Managers	22
	Summer Semester	
BA 2301	Introduction to Business Finance	22
BA 2302	Graphic Design in Multimedia Presentations	22
BA 2404	Calculus	22
	Second Year	
	Fall Semester	
BA 2303	Marketing Principles	23
BA 2304	Managerial Accounting	23
BA 2306	Social Sciences	23
BA 2403	Business Ethics	23
BA 3504	Organizational Behavior	24
BA 3605	Statistical Inference	24
	Spring Semester	
BA 3505	Quantitative Skills	24
BA 3601	Financial Management	25
BA 3602	Marketing Management	25
BA 4704	Management Information Systems	25
BA 4721	Advertising	26
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Course Code	Course Title	Page #
	Third Year	
	Fall Semester	
BA 1106	Islamiat and Pakistan Studies/Humanities	26
BA 4804	Human Resource Management	26
BA 2406	Business and Electronic Communication	27
BA 3517	Entrepreneurship & Small Business Management	27
BA 3518	Law for Managers	27
	Spring Semester	
BA 3617	Introductions to International Business	28
BA 3501	Money & Banking	28
BA 3616	Customer Relationship Management	28
BA 3618	Leadership Development	29
BA 3519	Current Affairs	29
	Forth Year	
	Fall Semester	
BA 3507	Consumer Behavior	29
BA 3501	Financial Markets and Institutions	30
BA 4824	Sales Management	30
BA 3603	Methods in Business Research	30
BA 4703	Staffing/Compensation and Employee Development	31
	Spring Semester	
BA 4807	Research Project	31
BA 4226	Customer Services & Excellence	31
BA 4225	Business Strategy	32
BA 4128	Operations & Supply Chain Management	32
BA 4127	Managing across Global environment	32

All courses may not be offered every year. Alternate courses may be substituted as and when required.

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Introduction to Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 1101	**Prerequisite(s)**	None
Course Description	This course covers the purpose and nature of accounting, forms of business enterprises, accounting information users, Generally Accepted Accounting Principles, accounting equation, accounting process, the accounting cycle, ledgers and entries, accounting for receivables, inventory and depreciation.		
Equivalent Course(s)	None		

Course Name	Microeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 1102	**Prerequisite(s)**	None
Course Description	Microeconomics studies how the individual parts of the economy, the households and the firms, make decisions to allocate limited resources. This course is based on a comprehensive study of the market structures, product markets and resource markets. It also deals with application of demand and supply, cost analysis and factors of production		
Equivalent Course(s)	SS 1105, BA 5302		

Course Name	Introduction to Computers	**Credit Hours**	**3** (1,2)
Course Code	BA 1103	**Prerequisite(s)**	None
Course Description	This course introduces fundamental computer concepts, including basic functions and operations of the computer. Course topics include; identification of hardware, operating system, application software, programming languages, files and data basics, data communication, networking basics, computer graphics, computer security and controls, MS Word, MS Excel, MS Access, MS Power Point, MS Project, internet browsers, databases and e-banking.		
Equivalent Course(s)	CSC 1104, BA 1108, BIO 1104		

Course Name	Personal Management	**Credit Hours**	**3** (3,0)
Course Code	BA 1104	**Prerequisite(s)**	None
Course Description	This course teaches students to discover themselves and make positive changes to achieve greater effectiveness at work, and in personal and interpersonal relationship. Students learn the combination of factors such as personality, communication style, self-esteem, time management, conflict, negotiation and others that impact their personal effectiveness. They also learn methods, and techniques required to work effectively and confidently with others, using time management, negotiation and presentation skills with a positive mindset.		
Equivalent Course(s)	BA 1109, BA 5311		

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	English Writing Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 1105	**Prerequisite(s)**	None

Course Description

The course covers comprehending problems and statements, developing arguments, and communicating ideas clearly and concisely. It also focuses on grammar, forms of punctuation, forms of speech, sentence and paragraph construction, composition, comprehension, writing styles, presentations, verbal communication skills, formal and informal presentations, interactive discussions, and role-playing.

Equivalent Course(s)

BA 5317, CSC 1102

Course Name	Maths for Business	**Credit Hours**	**3** (3,0)
Course Code	BA 1204	**Prerequisite(s)**	None

Course Description

The aim of this course is to prepare students to solve economic and managerial problem through mathematical concepts. This course is covered in four parts, first part is based on systems of linear equations and its solutions provide preliminary concept, construction of linear equations, graphical interpretation of data, systems of linear equations and solutions, introduction to matrix algebra, determinants, Cramer's rule & inverse method to solve system of linear equations. The second part develops the concept of linear and nonlinear functions, and their application, linear programming. The third part provides mathematics for finance, which covers simple, and compound interest rate computations and present and future annuity calculations. The last part of the course provides differentiation of basic functions, higher order differentiation, optimization of functions, definite and indefinite integration, applications of integration.

Equivalent Course(s)

BIO 1107

Course Name	Financial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 1201	**Prerequisite(s)**	BA 1101

Course Description

This course includes accounting for merchandise business, classified balance sheet, simple and multiple income statement, design of accounting system, accounts receivable, notes receivable, inventories, cost of goods sold, liabilities, corporation and measuring cash flow statements. Also, MS Excel is used and necessary accounting software is introduced.

Equivalent Course(s)

BA 5301

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Macroeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 1202	**Prerequisite(s)**	BA 1102

Course Description

This course introduces key economic indicators, role of government in an economy, measurement of gross domestic product, components of aggregate demand, consumption function and Keynesian multiplier, investment function, government intervention through monetary and fiscal policies, impact of government intervention on economic activity, inflation and unemployment, aggregate supply and demand, balance of payments and trade, public finance, growth, and development.

Equivalent Course(s) BA 5402, SS 1205

Course Name	Management Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 1203	**Prerequisite(s)**	None

Course Description

This course introduces the basic concepts of management, evolution and emergence of management thought, management function, planning concepts, decision-making, organizing, staffing, leading, controlling, and future of management and society.

Equivalent Course(s) BA 5303

Course Name	Oral Communication and Presentation Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 1206	**Prerequisite(s)**	BA 1105

Course Description

In this course student' learns the principles of a good presentation and has the opportunity to practice and experience these principles during this highly participative course. The course explores in detail, both verbal and non-verbal communication characteristics, and the importance of body-language expressions. Students are challenged through participative exercises with focus on active listening and observation techniques, that aim to make them competent in all facets of effective speech communication.

Equivalent Course(s) ME 1101, CSC 2101

Course Name	Statistics and Mathematics for Business	**Credit Hours**	**3** (3,0)
Course Code	BA 2305	**Prerequisite(s)**	BA 1204

Course Description

The course covers descriptive statistical tools and mathematical methods. Statistical tools consist of; frequency distribution, graphs, charts, mean, and variance, percentiles, correlation, and regression analysis. Mathematical methods consist of matrices, system of linear equations, differentiation and optimization, linear programming, and simplex method. The topics are taught in relation to their application in business and economics.

Equivalent Course(s) BA 5305, BA 2311, BIO 1208

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Computer Programming for Managers	**Credit Hours**	**3** (1,2)
Course Code	BA 3604	**Prerequisite(s)**	BA 1103
Course Description	This course emphasizes on the ability of information and technology to enhance the capabilities of business enterprises. Topics include: skills in problem solving techniques, flow-charting and algorithm design, processing methods and programs. In addition, the scope of computer programming and its usage in the development of business applications would be covered.		
Equivalent Course(s)	None		

Course Name	Introduction to Business Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 2301	**Prerequisite(s)**	BA 1201
Course Description	This course covers the concepts of business environment, forms of business organization, overview of financial environment, cost markets, institutions and interest rates, analyses of financial statements, time value of money, sources of short-term and long-term finance, break even analysis, working capital management, valuation of financial securities (debt/equity) and introduction to capital budgeting.		
Equivalent Course(s)	BA 5401		

Course Name	Graphic Design in Multimedia Presentations	**Credit Hours**	**3** (1,2)
Course Code	BA 2302	**Prerequisite(s)**	BA 3604
Course Description	The course introduces the computer system developed for graphics. It covers topics such as hardware and software components for multimedia production, basic computer operations, ergonomics, file management, scanning techniques, archiving capabilities, and utilization of the multimedia department server and internet connection. Software such as Adobe, Photoshop, and Freehand are introduced.		
Equivalent Course(s)	BA 4842		

Course Name	Calculus	**Credit Hours**	**3** (3,0)
Course Code	BA 2404	**Prerequisite(s)**	BA 2305
Course Description	The course covers the derivative, result of differentiation, derivative of logarithmic, exponential and trigonometric function, differential, growth and decay models, definite and indefinite integrals, techniques of integration, integrals involving logarithmic, exponential and trigonometric functions, integration by tables, area under a curve and between curves, functions of several variables, partial derivatives and their applications to optimization.		
Equivalent Course(s)	CSC 1101		

Course Name	Marketing Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 2303	**Prerequisite(s)**	BA 1203

Course Description

This course introduces the basic concepts of marketing, marketing environment, planning and research, market segmentation and targeting, consumer behavior, industrial marketing, product planning, product-mix, pricing, distribution, placement, promotional mix, and marketing in global scenarios.

Equivalent Course(s) BA 5404

Course Name	Managerial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 2304	**Prerequisite(s)**	BA 2301

Course Description

This course focuses on cost allocation, process costing systems and spoilage. Specific topics include relevancy of revenues and costs, cost allocation decisions (joint and byproducts), process costing systems, Factory overhead applied, Standard Costing: Setting of Standards, Analysis of Variance and Controlling and Costing Material.

Equivalent Course(s) BA 5411

Course Name	Social Sciences	**Credit Hours**	**3** (3,0)
Course Code	BA 2306	**Prerequisite(s)**	None

Course Description

This is an interdisciplinary course combining the perspectives of two or more of the social and behavioral sciences (anthropology, economics, geography, history, political science, psychology and sociology) on the central issues in social science studies. This course explores the relationship between the social and behavioral sciences being studied. It reviews the application of the scientific method, compares theory and concepts, and reviews the different perspectives of the discipline being studied. This course is broad in nature and scope and provides the basis for further study in other various social and behavioral sciences.

Equivalent Course(s) BA 2307, SS 2307, MD 1104

Course Name	Business Ethics	**Credit Hours**	**3** (3,0)
Course Code	BA 2403	**Prerequisite(s)**	BA 1203

Course Description

This course introduces contemporary and controversial ethical issues facing the business community. Topics include: moral reasoning, moral dilemmas, law and morality, equity, justice and fairness, ethical standards, and moral development. Upon completion, students would be able to demonstrate an understanding of their moral responsibilities and obligations as members of the workforce and society.

Equivalent Course(s) None

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Organizational Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 3504	**Prerequisite(s)**	BA 1203

Course Description

The course covers the subject matter on three levels: individual, group and interpersonal, and organizational. At the individual level, the focus is to examine individual behavior and differences, learning, perception, personality, motivation, and stress. The group/ interpersonal level covers group and inter-group behavior, creativity, and team decision-making. It also includes power, conflict, leadership, and communication. At the organizational level, it reviews the basics of organizational culture, organizational change and development, structure, design, employment relationship, and career management.

Equivalent Course(s) BA 5207

Course Name	Statistical Inference	**Credit Hours**	**3** (3,0)
Course Code	BA 3605	**Prerequisite(s)**	BA 1204

Course Description

The course covers probability; probability distributions; Binomial, Poisson, Hyper-geometric, Chi Square distribution, Normal distribution, Sampling Distribution; estimation; hypothesis testing; one-population test, two-populations test and analysis of variance; and computer applications in statistics.

Equivalent Course(s) BA 5405

Course Name	Quantitative Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 3505	**Prerequisite(s)**	BA 3605

Course Description

The course is an introduction to quantitative skills essentially required to business students. The course consists of several parts. First is related to arithmetic techniques like: numbers, exponents and roots, ratio and proportion, averages etc. and their usage in solving common problems. The second part consists of algebra, equations, and their applications in solving business problems. The third part comprises of coordinate geometry and combination of above parts. The fourth part covers graphical analysis and interpretation of the data. The fifth and last part consists of data sufficiency problems related to arithmetic, algebra and geometry.

Equivalent Course(s) None

Course Name	Financial Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3601	**Prerequisite(s)**	BA 2301

Course Description

Building upon the concepts already laid down in its pre-requisite, financial management helps students in exploring the depths of the relatively complex aspects of the financial world, with prime focus on the present value and opportunity cost of capital. This course covers topics such as nature, scope and function of financial decision areas, objectives of financial management, financial forecasting, working capital management, valuation of stocks, valuation of fixed income securities, project cash flow analysis, capital budgeting and decision making, determination of the required rate of return via asset pricing models, dividend policy, debt policy, introduction to financial risk management and derivatives and role of financial markets in Pakistan.

Equivalent Course(s) BA 5105

Course Name	Marketing Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3602	**Prerequisite(s)**	BA 2303

Course Description

The course introduces the concept of customer and market-driven management. This course covers organizations' external and internal environment, strengths, weaknesses, opportunities and threats, marketing information system, buyer behavior analysis, segmenting, targeting and positioning strategies, product and pricing strategies, an in-depth study of strategy building by organizations with the help of case studies and a practical, hands-on learning experience of marketing management through close observations of marketing management at different levels in marketing channels.

Equivalent Course(s) BA 5106

Course Name	Management Information Systems	**Credit Hours**	**3** (3,0)
Course Code	BA 4704	**Prerequisite(s)**	BA 3604

Course Description

This course covers different information technology applications in business for efficient management of business operations by providing support to decision makers for strategic business decisions. The course examines various corporate frameworks for information management and their utility.

Equivalent Course(s) BA 5403

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Advertising	**Credit Hours**	**3** (3,0)
Course Code	BA 4721	**Prerequisite(s)**	BA 2303
Course Description	This course introduces students to the principles and practices of contemporary advertising, marketing and public relations. In this course students explore these roles in the marketplace, the elements of a successful advertisement, advertising production, and tasks accomplished by media professionals while promoting products and service businesses.		
Equivalent Course(s)	None		

Course Name	Law and Taxation	**Credit Hours**	**3** (3,0)
Course Code	BA 4801	**Prerequisite(s)**	BA 1211
Course Description	The course covers process of legislation in Pakistan, Contract Act, Law of Sale of Goods, Partnership Law and Company laws, Sales Tax, Income Tax Law and Intellectual Property Laws. This course identifies the legal rights of persons in case of nonperformance of contracts, it also identifies the taxation system as well as kinds of taxes in Pakistan. Furthermore it also identifies the intellectual property rights in Pakistan.		
Equivalent Course(s)	None		

Course Name	Islamiat and Pakistan Studies/Humanities	**Credit Hours**	**3** (3,0)
Course Code	BA 1106	**Prerequisite(s)**	None
Course Description	This course provides an introduction to the history of Pakistan with reference to pre- and post-independence eras, and the contribution of different governments in nation's social, economic and legislative development over years. The second part of the course focuses on Islam and the present-day Muslim world.		
Equivalent Course(s)	CSC 1105, MD 2402, SS 1109, BIO 2303		

Course Name	Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 4804	**Prerequisite(s)**	BA 3504
Course Description	This course examines the role of the human resource professional, as a strategic partner, in managing contemporary organizations. The course introduces concepts, issues and practices in human resource management such as Human Resource planning, job design and analysis, recruitment and selection, training and development, performance appraisal, compensation and benefit management, career planning and development, employee relations, appraising the implications of legal and global environments and analyzing the current issues (such as diversity training, sexual harassment policies, rising benefit costs), and best practices of employers of choice.		
Equivalent Course(s)	BA 5205		

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Business and Electronic Communication	**Credit Hours**	**3** (3,0)
Course Code	BA 2406	**Prerequisite(s)**	BA 1206

Course Description

This introductory course teaches students to communicate at both personal and professional levels. In addition, it develops competency in all forms of communication. This course introduces communication theories and strategies for a variety of business situations. Using a developmental approach to business communication, the course examines methods for organizing ideas, analyzing data, addressing diverse concerns, presenting information, and developing a professional communication style.

Equivalent Course(s) BA 5304

Course Name	Entrepreneurship & Small Business Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3517	**Prerequisite(s)**	BA 2301, BA 2303

Course Description

This course focuses on ways in which entrepreneurs recognize opportunities, generate ideas, and organize resources to plan and run successful ventures that enable them to achieve their goals. Students are required to create an entrepreneurial venture as part of a practical learning activity. Through this hands-on experience, case studies, class discussions and textbook readings students will have an opportunity to develop the values, traits, and skills most often associated with successful entrepreneurs.

Equivalent Course(s) BA 5406, BA 4859, BA 3502

Course Name	Law for Managers	**Credit Hours**	**3** (3,0)
Course Code	BA 3518	**Prerequisite(s)**	BA 4801

Course Description

This course focuses on ways to teach students the basic principles in governing the corporate laws, management and the structure of corporate entities. In addition the students will be able to comprehend the corporate laws applicable to the listed and public sector companies. This course identifies the rules and regulations laid down by Competition Commission of Pakistan; and demonstrate the rules and regulations governing the Non-Banking Finance Corporations.

Equivalent Course(s) None

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Introduction to International Business	**Credit Hours**	**3** (3,0)
Course Code	BA 3617	**Prerequisite(s)**	BA 3602, BA 4804 BA 2404, BA 3502

Course Description

This course provides the manager perspective in the fields of international payments, international trade, and the analysis of investments. Emphasis is given to the materials and concepts that illuminate the strategies, structure, practices, and effects of multinational enterprises. The topics to be covered are: The Nature of International Business Management, Marketing to Customers with Diverse Cultural Backgrounds, Operations in Diverse Political and Legal Environments, Finance in the International Marketplace, Human Resources and Employees of Diverse Cultural Backgrounds, and Strategy and Structure of International or Global Enterprises.

Equivalent Course(s) BA 5308

Course Name	Money and Banking	**Credit Hours**	**3** (3,0)
Course Code	BA 2401	**Prerequisite(s)**	BA 1202

Course Description

This course deals with the history, evolution and function of money. The course essentially delves into the following key topics: monetary policies which are aligned in accordance to the monetary systems, responsibilities of SBP as central bank, controlling money supply in the economy, operations and functions of commercial banks, role of other financial intermediaries, key financial instruments available in the market. In addition, commodity markets, hedging instruments, different functions of treasury, corporate and consumer banking department is also introduced.

Equivalent Course(s) None

Course Name	Customer Relationship Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3616	**Prerequisite(s)**	BA 2303

Course Description

Customer Relationship Management (CRM) is the business strategy, process, culture and technology that enables organizations to optimize revenue and increase value through a more complete understanding and fulfillment of customer needs. CRM aims at providing better customer service, retaining customers as long-term profitable customers, selling services/products more effectively, gaining new customers from present customers through referrals, and providing helping hand to salespeople.

Equivalent Course(s) BA 5124

Course Name	Leadership Development	**Credit Hours**	**3** (3,0)
Course Code	BA 3618	**Prerequisite(s)**	BA 4804

Course Description

This course is designed to build upon fundamental leadership theory and further explore historical and contemporary leadership theories, models and perspectives within a variety of contexts. Through dynamic interactions between the instructor, students and other experiences, each student should develop a more complete and holistic philosophical and theoretical leadership framework. This course focuses on professional leadership development. The course is designed to improve personal awareness in the areas of self-management, professionalism, work attitudes and motivation, personality, innovation and creativity, communication, diversity, and ethical decision making.

Equivalent Course(s) None

Course Name	Current Affairs	**Credit Hours**	**3** (3,0)
Course Code	BA 3519	**Prerequisite(s)**	BA 1202, BA 1105

Course Description

Current Affairs is a course designed to address current issues locally, nationally, and internationally. The course will also focus on major areas of conflict in the world. In this course student will be engaged in critical evaluation of topics on social, political, intellectual, religious and economic viewpoints. Students will experience simulations, debates and technology incorporated into the curriculum.

Equivalent Course(s) None

Course Name	Consumer Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 3507	**Prerequisite(s)**	BA 2303

Course Description

This course examines in detail, the complex behavioral processes which determine consumer actions and analyzes the decision patterns in a variety of situations with a special reference to individual and group influences. It is designed to cover contemporary concepts in consumer behavior, objectives, consumer and market segmentation, environmental influence, individual determinants, and consumer buying behavior.

Equivalent Course(s) BA 5123

Course Name	Financial Markets and Institutions	**Credit Hours**	**3** (3,0)
Course Code	BA 3501	**Prerequisite(s)**	BA 2401

Course Description

A theoretical course that focuses on financial markets includes bond, equity and the effect of the economy upon the markets when funds are injected into the economic system through financial intermediaries. Topics include; interest rates the flow of funds, capital markets, debt market, money markets and their relationship with changing financial services and regulatory agencies. Other topics include roles of banks, finance companies, insurance companies and fund management companies. The study of Financial Market and Institutions (FMI) is one of the most important areas for finance and business students. The course has been designed to enable the students to understand the existing setup of financial markets, instruments and institutions.

Equivalent Course(s) BA 5135

Course Name	Sales Management	**Credit Hours**	3 (3,0)
Course Code	BA 4824	**Prerequisite(s)**	BA 3602

Course Description

This course focuses on the management of an organization's personal selling functions which include the: 1. Formulation of a strategic sales program. 2. Implementation of the sales program and, 3. Evaluation and control of the sales force performance. This course comprises of an approach to understand the above stated sets of decisions and processes, through text and cases on sales management topics and also through sharing of the facilitator's own experiences and observations, gained while serving various multinational and national sales and marketing organizations.

Equivalent Course(s) BA 3604

Course Name	Business Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BA 3603	**Prerequisite(s)**	BA 3605

Course Description

This course provides the understanding of basic business research methods in the field of marketing, human resource management, and finance. The subject encompasses the theory and practice of research; and covers concepts, elements, and process of conducting business research. It builds the specific conceptual knowledge regarding identification and elicitation of research problem, development of research proposal, reviewing the literature, using suitable research methodology, data collection and analysis tools and writing research report. The focus of the course is on basic concept building and relating the research to real life business problems.

Equivalent Course(s) SS 3504

Course Name	Staffing & Compensation	**Credit Hours**	**3** (3,0)
Course Code	BA 4703	**Prerequisite(s)**	BA 4804

Course Description

This course focuses on strategies and tool to create organizational excellence through a continuous cycle of Recruitment & Selection. It explains pragmatic approaches for maintaining distinctive competence in knowledge workers by identifying high quality talent; creation of technological strategies to recruit high quality talent.

Equivalent Course(s) None

Course Name	Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 4807	**Prerequisite(s)**	BA 3603

Course Description

The research project course is the application of the theory and concepts learned across various courses in BABS program. It is a team-based project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) None

Course Name	Customer Services & Excellence	**Credit Hours**	**3** (3,0)
Course Code	BA 4226	**Prerequisite(s)**	BA 3602

Course Description

This course highlights the importance of service standards and their impact on a customer's experience. In addition it helps the team to think in a customer centric way. The course focuses on how you handle your customers can directly affect your individual goals as well as your team's and company's performance. This course emphasizes on providing good customer service by identifying the skills you need to communicate professionalism, gain respect, enhance customer relationships and secure an overall competitive advantage through customer service excellence.

Equivalent Course(s) None

1.1.2 Bachelor of Arts in Business Studies (BABS)

Course Name	Business Strategy	**Credit Hours**	**3** (3,0)
Course Code	BA 4225	**Prerequisite(s)**	BA 3602, BA 3601 BA 4804

Course Description

Strategy involves the coordination and integration of the efforts within the different functional areas of an organization for dealing with an uncertain future. This comprises formulating a business strategy for each individual unit of the firm, formulating a corporate strategy, and implementing these strategies. Strategy formulation involves understanding the business the firm is in, determining how to position the strategic unit within this business environment, and developing the capabilities to compete, but also to cooperate, in this environment. Therefore, strategy at the same time coordinates and integrates the individual functional strategies such as manufacturing, marketing, sales, and finance.

Equivalent Course(s) None

Course Name	Operations & Supply Chain Management	**Credit Hours**	**3** (3,0)
Course Code	BA 4128	**Prerequisite(s)**	BA 1203

Course Description

Study of the process directly related to the creation and distribution of goods and services. Increasingly, these operations are taking place outside the boundaries of a traditional enterprise. This course teaches students how to analyze processes, ensure quality, create value, and manage the flow of information, products and services across a network of customers, enterprises and supply chain partners.

Equivalent Course(s) None

Course Name	Managing Across Global Environment	**Credit Hours**	**3** (3,0)
Course Code	BA 4127	**Prerequisite(s)**	BA 1203

Course Description

The purpose of this course is to explore cultural dimensions of international management in view of increasing cultural differences between individuals and groups within and between organizations as a result of globalization. Culture is defined in its widest sense as the accumulation of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions: acquired by a group of people in the course of generations through individual and group behavior. Thus culture is communication and communication is culture.

Equivalent Course(s) None

1.2.1 Master of Business Administration (MBA)

Students enrolled in Master of Business Administration-36 Credit Hours (MBA-36 CHs) program are required to complete 10 courses and a Business Research Project/Academic Research Project/ Thesis (6 credits) within five (5) years. The break-up of the 10 courses is as follows:

- *6 Core Courses (18 Credit Hours)*
- *4 Elective Courses[3] (12 Credit Hours)*
- *1 Business Research Project/Academic Research Project//Thesis (6 Credit Hours)*

MBA (36 credit hours)

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BA 5501	Applied Research Methods	34
BA 5104	Strategic Management	34
BA 5xxx	Elective-I	215 & 216
BA 5xxx	Elective-II	215 & 216
	Spring Semester	
BA 5203	Strategic Marketing	34
BA 5601	Strategic Human Resource Management	35
BA 5xxx	Elective-III	215 & 216
BA 5xxx	Elective-IV	215 & 216
	Second Year	
	Fall Semester	
BA 5308	International Business	35
BA 5208	Strategic Finance	35
BA 5509/ BA 5609/ BA 5109	Business Research Project/Academic Research Project/Thesis	36

All courses may not be offered every year. Alternate courses may be substituted as and when required.

3 List of Electives is given in Appendix B.

1.2.1 Master of Business Administration in (MBA)

Course Name	Applied Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BA 5501	**Prerequisite(s)**	None

Course Description	This course equips students with the essential tools of research which forms the basis of sound decision-making. Through an applied approach using term report supplemented by classroom discussions and presentations, students gain knowledge of converting a business issue into a research problem; and applying the most appropriate methodology to solve this problem. The course provides an overview of applied research methodology and statistics. The general aims are to provide a) an advanced understanding of research methods and data analysis, b) enhanced research literacy, and c) a greater understanding of the way in which research methodology and statistics are interwoven with theory and the practice.
Equivalent Course(s)	None

Course Name	Strategic Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5104	**Prerequisite(s)**	None

Course Description	The course covers various aspects of strategic management, information inputs, concepts of mission and objectives, strategy formulation, action plan choice, strategy selection and evaluation, function strategy evaluation, strategy implementation and strategic control.
Equivalent Course(s)	None

Course Name	Strategic Marketing	**Credit Hours**	**3** (3,0)
Course Code	BA 5203	**Prerequisite(s)**	None

Course Description	This course addresses topics such as business and marketing strategies, business strategy and competitive advantage, marketing situation analysis, market segmentation, marketing target and positioning strategy, product portfolio strategy, price strategy, promotion strategy, marketing strategy implementation and control. The focus is on the analysis and decision making process from strategic point of view. Additionally, understanding of how marketing interacts with other levels of strategy and integrate with all the other departments within the organization.
Equivalent Course(s)	None

1.2.1 Master of Business Administration in (MBA)

Course Name	Strategic Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5601	**Prerequisite(s)**	None

Course Description

This course equips students to take strategic human resource decisions. The course is designed to involve students in practical activities ranging from assessment of the global economic environment and organizational culture to the analysis of competencies and the implementation of human resource decisions. Students carry out a detailed strategic analysis of a human resource management issue in organizations and, in doing so learn how to contribute in improving the performance, productivity, and morale.

Equivalent Course(s) None

Course Name	International Business	**Credit Hours**	**3** (3,0)
Course Code	BA 5308	**Prerequisite(s)**	None

Course Description

This course develops an understanding of the worldwide developments and foundations for international business and the cultural context for managing in an overseas environment. It provides an understanding of the macroeconomic and political changes that have taken place in the era of globalization and beyond globalization. It also helps to investigate the political economy of international business, trade and investment, In Addition describes and explains trade and the investment environment in which international business transactions occurs.

Equivalent Course(s) None

Course Name	Strategic Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 5208	**Prerequisite(s)**	None

Course Description

This is an advanced course in finance that focuses upon the linkages that exist between corporate strategy and objectives, financial policy and financing strategies, corporate governance, and the creation and allocation of wealth. It also discusses the appropriate tools that can be applied to structuring and managing the business and financial affairs of a firm under varying conditions.

Equivalent Course(s) None

1.2.1 Master of Business Administration in (MBA)

Course Name	Business Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5509	**Prerequisite(s)**	BA 5501

Course Description

Students are required to work in teams on a specific industry challenge faced by a company. The project work usually involves carrying out research and/or performing sound strategic analysis for identifying solutions to the problem. Client organizations benefit a great deal from the solutions proposed by the students. The objectives of this project work are to enhance the practical side of the learning process, to internalize managerial concepts, and to develop creative and applicable solutions.

Equivalent Course(s) BA 5109, BA 5609

Course Name	Academic Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5609	**Prerequisite(s)**	BA 5501

Course Description

The Academic Research Project course is the application of the theory and concepts learned across various courses in MBA program. It is a team-based project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) BA 5109, BA 5509

Course Name	Thesis	**Credit Hours**	**6** (6,0)
Course Code	BA 5109	**Prerequisite(s)**	BA 5501

Course Description

The Thesis is the application of the theory and concepts learned across various courses in MBA program. It is an individual project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) BA 5509, BA 5609

MBA (72 credit hours)

Students enrolled in Master of Business Administration-72 Credit Hours (MBA-72 CHs) program are required to complete 22 courses and 1 Business Research Project/Academic Research Project/Thesis (6 credits) within five (5) years. The break-up of the 22 courses is as follows:

- *18 Core Courses (54 Credit Hours)*
- *4 Elective Courses[5] (12 Credit Hours)*
- *1 Business Research Project/Academic Research Project/Thesis (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BA 5301	Financial Accounting	38
BA 5419	Business Management &Ethics	38
BA 5418	Managerial Communication	38
BA 5502	Quantitative Tools for Managers	38
BA 5404	Marketing Principles	39
BA 5207	Organizational Behavior	39
	Spring Semester	
BA 5106	Marketing Management	39
BA 5205	Human Resource Management	40
BA 5411	Cost and Management Accounting	40
BA 5401	Introduction to Business Finance	40
BA 5408	Business Economics	41
BA 5501	Applied Research Methods	41
	Second Year	
	Fall Semester	
BA 5308	International Business	41
BA 5104	Strategic Management	42
BA 5105	Financial Management	42
BA 5203	Strategic Marketing	42
BA 5xxx	Elective-I	215 & 216
BA 5xxx	Elective-II	215 & 216
	Spring Semester	
BA 5601	Strategic Human Resource Management	43
BA 5208	Strategic Finance	43
BA 5xxx	Elective-III	215 & 216
BA 5xxx	Elective-IV	215 & 216
BA 5509/ BA 5609/ BA 5109	Business Research Project/Academic Research Project/Thesis	43 & 44

All courses may not be offered every year. Alternate courses may be substituted as and when required.

4 List of Electives is given in Annexure B.

1.2.1 Master of Business Administration in (MBA)

Course Name	Financial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 5301	**Prerequisite(s)**	None

Course Description

This course includes accounting for merchandise business, classified balance sheet, simple and multiple income statement, design of accounting system, accounts receivable, notes receivable, inventories, cost of goods sold, liabilities, corporation and measuring cash flow statements. Also, MS Excel is used and necessary accounting software is introduced.

Equivalent Course(s) BA 1201

Course Name	Business Management & Ethics	**Credit Hours**	**3** (3,0)
Course Code	BA 5419	**Prerequisite(s)**	None

Course Description

This course introduces the basic concepts of management, evolution and emergence of management thought, management function, planning concepts, decision-making, organizing, staffing, leading, controlling, and future perspective of management and society. The course also introduces contemporary ethical issues faced by the business community.

Equivalent Course(s) BA 5303, BA 1203

Course Name	Managerial Communication	**Credit Hours**	**3** (3,0)
Course Code	BA 5418	**Prerequisite(s)**	None

Course Description

This course is designed to develop the application of written oral and interpersonal communication theory in the business management environment. Areas of emphasis include the role of communication in contemporary organizations, considerations of message production and reception, internal versus external audiences, communicating change, intercultural communication, and ethics.

Equivalent Course(s) BA 5304, BA 2406,

Course Name	Quantitative Tools for Managers	**Credit Hours**	**3** (3,0)
Course Code	BA 5502	**Prerequisite(s)**	None

Course Description

The course is designed to provide quantitative tools and methods to managers. It encompasses descriptive statistics, probability theory and application, sampling methods and distribution, regression and correlation, testing of hypotheses for various population parameters, application Z, t, F, and Chi-square distributions, time series and index numbers, matrix algebra and applications, applications of systems of linear and quadratic equations, business and economics applications of differentiation and integrations, and linear programming.

Equivalent Course(s) None

1.2.1 Master of Business Administration in (MBA)

Course Name	Marketing Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 5404	**Prerequisite(s)**	None
Course Description	This course introduces the basic concepts of marketing, marketing environment, planning and research, market segmentation and targeting, consumer behavior, industrial marketing, product planning, product-mix, pricing, distribution, placement, promotional mix, and marketing in global scenarios.		
Equivalent Course(s)	BA 2303		

Course Name	Organizational Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 5207	**Prerequisite(s)**	None
Course Description	The course covers the subject matter on three levels: individual, group and interpersonal, and organizational. At the individual level, the focus is to examine individual behavior and differences, learning, perception, personality, motivation, and stress. The group/ interpersonal level covers group and inter-group behavior, creativity, and team decision-making. It also includes power, conflict, leadership, and communication. At the organizational level, it reviews the basics of organizational culture, organizational change and development, structure, design, employment relationship, and career management.		
Equivalent Course(s)	BA 3504		

Course Name	Marketing Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5106	**Prerequisite(s)**	BA 5404
Course Description	The course introduces the concept of customer and market-driven management. This course covers organizations' external and internal environment, strengths, weaknesses, opportunities and threats, marketing information system, buyer behavior analysis, segmenting, targeting and positioning strategies, product and pricing strategies, an in-depth study of strategy building by organizations with the help of case studies and a practical, hands-on learning experience of marketing management through close observations of marketing management at different levels in marketing channels.		
Equivalent Course(s)	BA 3602		

1.2.1 Master of Business Administration in (MBA)

Course Name	Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5205	**Prerequisite(s)**	BA 5419, BA 5207

Course Description

This course examines the role of the human resource professional, as a strategic partner, in managing contemporary organizations. The course introduces concepts, issues and practices in human resource management such as Human Resource planning, job design and analysis, recruitment and selection, training and development, performance appraisal, compensation and benefit management, career planning and development, employee relations, appraising the implications of legal and global environments and analyzing the current issues (such as diversity training, sexual harassment policies, rising benefit costs), and best practices of employers of choice.

Equivalent Course(s) BA 4804

Course Name	Cost and Management Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 5411	**Prerequisite(s)**	BA 5301

Course Description

This course introduces cost concepts, classifications, behaviors, and assignment, usage of quantitative and qualitative tools and methods of preparing spreadsheet models to analyze data, account for specific industries and organizational structures, understand advantages, disadvantages, and appropriate usage of job-order costing, process costing, activity-based costing, variable costing, and standard costing, and computing and interpreting variances from budgets and standards.

Equivalent Course(s) BA 2408

Course Name	Introduction to Business Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 5401	**Prerequisite(s)**	None

Course Description

This course covers the concepts of business environment, forms of business organization, overview of financial environment, cost markets, institutions and interest rates, analyses of financial statements, time value of money, sources of short-term and long-term finance, break even analysis, working capital management, valuation of financial securities (debt/equity) and introduction to capital budgeting.

Equivalent Course(s) BA 2301

1.2.1 Master of Business Administration in (MBA)

Course Name	Business Economics	**Credit Hours**	**3** (3,0)
Course Code	BA 5408	**Prerequisite(s)**	None

Course Description

This course aims at imparting knowledge of basic economic principles to the business students. It covers micro-and macroeconomic issues that are essential for managers and professionals. The course starts with basic microeconomics concepts such as demand, supply, elasticity, production and cost. Having established the solid ground of the basics of microeconomics, parts of macroeconomics including national income accounts, aggregate demand, aggregate supply, concepts of inflation and unemployment, exchange rate, balance of payments, international trade, business cycles, money and banking, economic growth & major macroeconomic policy operations are dealt with. After completing the course the students will be able to apply principles of economics to understand and analyze economic problems being faced by both public and private sectors of Pakistan.

Equivalent Course(s) None

Course Name	Applied Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BA 5501	**Prerequisite(s)**	None

Course Description

This course equips students with the essential tools of research which forms the basis of sound decision-making. Through an applied approach using term report supplemented by classroom discussions and presentations, students gain knowledge of converting a business issue into a research problem; and applying the most appropriate methodology to solve this problem. The course provides an overview of applied research methodology and statistics. The general aims are to provide a) an advanced understanding of research methods and data analysis, b) enhanced research literacy, and c) a greater understanding of the way in which research methodology and statistics are interwoven with theory and the practice.

Equivalent Course(s) None

Course Name	International Business	**Credit Hours**	**3** (3,0)
Course Code	BA 5308	**Prerequisite(s)**	None

Course Description

This course develops an understanding of the worldwide developments and foundations for international business and the cultural context for managing in an overseas environment. It provides an understanding of the macroeconomic and political changes that have taken place in the era of globalization and beyond globalization. It also helps to investigate the political economy of international business, trade and investment, In Addition describes and explains trade and the investment environment in which international business transactions occurs.

Equivalent Course(s) None

1.2.1 Master of Business Administration in (MBA)

Course Name	Strategic Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5104	**Prerequisite(s)**	BA 5105, BA 5106 BA 5205

Course Description

The course covers various aspects of strategic management, information inputs, concepts of mission and objectives, strategy formulation, action plan choice, strategy selection and evaluation, function strategy evaluation, strategy implementation and strategic control.

Equivalent Course(s)

None

Course Name	Financial Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5105	**Prerequisite(s)**	BA 5401, BA 5301

Course Description

Building upon the concepts already laid down in its pre-requisite, financial management helps students in exploring the depths of the relatively complex aspects of the financial world, with prime focus on the present value and opportunity cost of capital. This course covers topics such as nature, scope and function of financial decision areas, objectives of financial management, financial forecasting, working capital management, valuation of stocks, valuation of fixed income securities, project cash flow analysis, capital budgeting and decision making, determination of the required rate of return via asset pricing models, dividend policy, debt policy, introduction to financial risk management and derivatives and role of financial markets in Pakistan.

Equivalent Course(s)

BA 3601

Course Name	Strategic Marketing	**Credit Hours**	**3** (3,0)
Course Code	BA 5203	**Prerequisite(s)**	BA 5105, BA 5106 BA 5205

Course Description

This course addresses topics such as business and marketing strategies, business strategy and competitive advantage, marketing situation analysis, market segmentation, marketing target and positioning strategy, product portfolio strategy, price strategy, promotion strategy, marketing strategy implementation and control. The focus is on the analysis and decision making process from strategic point of view. Additionally, understanding of how marketing interacts with other levels of strategy and integrate with all the other departments within the organization.

Equivalent Course(s)

None

1.2.1 Master of Business Administration in (MBA)

Course Name	Strategic Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5601	**Prerequisite(s)**	BA 5205

Course Description

This course equips students to take strategic human resource decisions. The course is designed to involve students in practical activities ranging from assessment of the global economic environment and organizational culture to the analysis of competencies and the implementation of human resource decisions. Students carry out a detailed strategic analysis of a human resource management issue in organizations and, in doing so learn how to contribute in improving the performance, productivity, and morale.

Equivalent Course(s) None

Course Name	Strategic Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 5208	**Prerequisite(s)**	None

Course Description

This is an advanced course in finance that focuses upon the linkages that exist between corporate strategy and objectives, financial policy and financing strategies, corporate governance, and the creation and allocation of wealth. It also discusses the appropriate tools that can be applied to structuring and managing the business and financial affairs of a firm under varying conditions.

Equivalent Course(s) None

Course Name	Business Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5509	**Prerequisite(s)**	BA 5501

Course Description

Students are required to work in teams on a specific industry challenge faced by a company. The project work usually involves carrying out research and/or performing sound strategic analysis for identifying solutions to the problem. Client organizations benefit a great deal from the solutions proposed by the students. The objectives of this project work are; to enhance the practical side of the learning process, to internalize managerial concepts, and to develop creative and applicable solutions.

Equivalent Course(s) BA 5109, BA 5609

1.2.1 Master of Business Administration in (MBA)

Course Name	Academic Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5609	**Prerequisite(s)**	BA 5501

Course Description

The Academic Research Project course is the application of the theory and concepts learned across various courses in MBA program. It is a team-based project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) BA 5109, BA 5509

Course Name	Thesis	**Credit Hours**	**6** (6,0)
Course Code	BA 5109	**Prerequisite(s)**	BA 5501

Course Description

The Thesis is the application of the theory and concepts learned across various courses in MBA program. It is an individual project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) BA 5509, BA 5609

MBA (90 credit hours)

Students enrolled in Master of Business Administration-90 Credit Hours (MBA-90 CHs) program are required to complete 28 courses and a Business Research Project/Academic Research Project/ Thesis (6 credits) within five (5) years. The break-up of the 28 courses is as follows:

- *24 Core Courses (72 Credit Hours)*
- *4 Elective Courses[5] (12 Credit Hours)*
- *1 Business Research Project/Academic Research Project/Thesis (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BA 5317	English Writing Skills	46
BA 5602	Oral Communication and Presentations Skills	46
BA 5301	Financial Accounting	46
BA 5419	Business Management & Ethics	46
BA 5311	Personal Management	47
	Spring Semester	
BA 5305	Statistics and Mathematics for Business	47
BA 5401	Introduction to Business Finance	47
BA 5404	Marketing Principles	48
BA 5408	Business Economics	48
BA 5418	Managerial Communication	48
	Second Year	
	Fall Semester	
BA 5503	Logic and Critical Thinking	49
BA 5207	Organizational Behavior	49
BA 5405	Statistical Inference	49
BA 5105	Financial Management	50
BA 5106	Marketing Management	50
	Spring Semester	
BA 5501	Applied Research Methods	50
BA 5205	Human Resource Management	51
BA 5411	Cost and Management Accounting	51
BA 5xxx	Elective-I	215 & 216
BA 5xxx	Elective-II	215 & 216
	Third Year	
	Fall Semester	
BA 5104	Strategic Management	51
BA 5208	Strategic Finance	52
BA 5406	Entrepreneurship	52
BA 5xxx	Elective-III	215 & 216
BA 5xxx	Elective-IV	215 & 216
	Spring Semester	
BA 5203	Strategic Marketing	52
BA 5318	Strategic Human Resource Management	53
BA 5308	International Business	53
BA 5509/ BA 5609/ BA 5109	Business Research Project/Academic Research Project/Thesis	53 & 54

All courses may not be offered every year. Alternate courses may be substituted as and when required.

5 List of Electives is given in Appendix B.

1.2.1 Master of Business Administration in (MBA)

Course Name	English Writing Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 5317	**Prerequisite(s)**	None
Course Description	The course covers comprehending problems and statements, developing arguments, and communicating ideas clearly and concisely. It also focuses on grammar, forms of punctuation, forms of speech, sentence and paragraph construction, composition, comprehension, writing styles, presentations, verbal communication skills, formal and informal presentations, interactive discussions, and role-playing.		
Equivalent Course(s)	BA 1105, CSC 1102		

Course Name	Oral Communication and Presentations Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 5602	**Prerequisite(s)**	None
Course Description	In this course student learns the principles of a good presentation and has the opportunity to practice and experience these principles during this highly participative course. The course explores in detail, both verbal and non-verbal communication characteristics, and the importance of body-language expressions. Students are challenged through participative exercises with focus on active listening and observation techniques, that aim to make them competent in all facets of effective speech communication.		
Equivalent Course(s)	BA 1206		

Course Name	Financial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 5301	**Prerequisite(s)**	None
Course Description	This course includes accounting for merchandise business, classified balance sheet, simple and multiple income statement, design of accounting system, accounts receivable, notes receivable, inventories, cost of goods sold, liabilities, corporation and measuring cash flow statements. Also, MS Excel is used and necessary accounting software is introduced.		
Equivalent Course(s)	BA 1201		

Course Name	Business Management & Ethics	**Credit Hours**	**3** (3,0)
Course Code	BA 5419	**Prerequisite(s)**	None
Course Description	This course introduces the basic concepts of management, evolution and emergence of management thought, management function, planning concepts, decision-making, organizing, staffing, leading, controlling, and future perspective of management and society. The course also introduces contemporary ethical issues faced by the business community.		
Equivalent Course(s)	BA 5303, BA 1203		

1.2.1 Master of Business Administration in (MBA)

Course Name	Personal Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5311	**Prerequisite(s)**	None

Course Description

This course teaches students to discover themselves and make positive changes to achieve greater effectiveness at work, and in personal and interpersonal relationship. Students learn the combination of factors such as personality, communication style, self-esteem, time management, conflict, negotiation and others that impact their personal effectiveness. They also learn methods, and techniques required to work effectively and confidently with others, using time management, negotiation and presentation skills with a positive mindset.

Equivalent Course(s) BA 1104, BA 1109

Course Name	Statistics and Mathematics for Business	**Credit Hours**	**3** (3,0)
Course Code	BA 5305	**Prerequisite(s)**	None

Course Description

The statistical portion of this course consists of three parts. The first part consists of the introduction to statistics, types of data, frequency distribution, graphs, and charts. The second part covers measures of central tendency, and measures of dispersion. The third part is based on the concept of curve fitting techniques, regression analysis, correlation analysis, and MS Excel tools for statistics using add-on analysis tool pack. The mathematical portion of this course is covered by three parts. The first part based on systems of linear equations and its solutions: construction of linear and quadratic equations, graphical interpretation of data, systems of linear equations and solutions, introduction to matrix algebra, determinants, cramer's rule and inverse method. The second part develops the concept of linear and nonlinear functions, and differentiation of basic functions with applications. The third part includes, higher order differentiation, optimization of functions, linear programming, and simplex method. The aim of this course is to prepare student to solve economic and managerial research problem through quantitative tools.

Equivalent Course(s) BA 2305

Course Name	Introduction to Business Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 5401	**Prerequisite(s)**	BA 5301

Course Description

This course covers the concepts of business environment, forms of business organization, overview of financial environment, cost markets, institutions and interest rates, analyses of financial statements, time value of money, sources of short-term and long-term finance, break even analysis, working capital management, valuation of financial securities (debt/equity) and introduction to capital budgeting.

Equivalent Course(s) BA 2301

1.2.1 Master of Business Administration in (MBA)

Course Name	Marketing Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 5404	**Prerequisite(s)**	BA 5419

Course Description

This course introduces the basic concepts of marketing, marketing environment, planning and research, market segmentation and targeting, consumer behavior, industrial marketing, product planning, product-mix, pricing, distribution, placement, promotional mix, and marketing in global scenarios.

Equivalent Course(s) BA 2303

Course Name	Business Economics	**Credit Hours**	**3** (3,0)
Course Code	BA 5408	**Prerequisite(s)**	None

Course Description

This course aims at imparting knowledge of basic economic principles to the business students. It covers micro-and macroeconomic issues that are essential for managers and professionals. The course starts with basic microeconomics concepts such as demand, supply, elasticity, production and cost. Having established the solid ground of the basics of microeconomics, parts of macroeconomics including national income accounts, aggregate demand, aggregate supply, concepts of inflation and unemployment, exchange rate, balance of payments, international trade, business cycles, money and banking, economic growth & major macroeconomic policy operations are dealt with. After completing the course the students will be able to apply principles of economics to understand and analyze economic problems being faced by both public and private sectors of Pakistan.

Equivalent Course(s) None

Course Name	Managerial Communication	**Credit Hours**	**3** (3,0)
Course Code	BA 5418	**Prerequisite(s)**	None

Course Description

This course is designed to develop the application of written, oral and interpersonal communication theory in the business management environment. Areas of emphasis include the role of communication in contemporary organizations, considerations of message production and reception, internal versus external audiences, communicating change, intercultural communication, and ethics.

Equivalent Course(s) BA 5304, BA 2406

1.2.1 Master of Business Administration in (MBA)

Course Name	Logic and Critical Thinking	**Credit Hours**	**3** (3,0)
Course Code	BA 5503	**Prerequisite(s)**	None

Course Description

The course covers scope and laws of logic, deduction and induction, inferences, forms of discourse, emotive words, kinds of disputes and disagreements, rules and fallacies, classical (Aristotelian) logic, standard-form categorical syllogisms and testing, uniform translation, dilemma and enthymemes, and Mills' Methods of scientific investigation. Critical thinking skills and techniques are also introduced.

Equivalent Course(s) BA 1211

Course Name	Organizational Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 5207	**Prerequisite(s)**	BA 5419

Course Description

The course covers the subject matter on three levels: individual, group and interpersonal, and organizational. At the individual level, the focus is to examine individual behavior and differences, learning, perception, personality, motivation, and stress. The group/ interpersonal level covers group and inter-group behavior, creativity, and team decision-making. It also includes power, conflict, leadership, and communication. At the organizational level, it reviews the basics of organizational culture, organizational change and development, structure, design, employment relationship, and career management.

Equivalent Course(s) BA 3504

Course Name	Statistical Inference	**Credit Hours**	**3** (3,0)
Course Code	BA 5405	**Prerequisite(s)**	BA 5305

Course Description

The course covers probability; probability distributions; Binomial, Poisson, Hyper-geometric, Chi Square distribution, Normal distribution, Sampling Distribution; estimation; hypothesis testing; one-population test, two-populations test and analysis of variance; and computer applications in statistics.

Equivalent Course(s) BA 3605

1.2.1 Master of Business Administration in (MBA)

Course Name	Financial Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5105	**Prerequisite(s)**	BA 5401

Course Description

Building upon the concepts already laid down in its pre-requisite, financial management helps students in exploring the depths of the relatively complex aspects of the financial world, with prime focus on the present value and opportunity cost of capital. This course covers topics such as nature, scope and function of financial decision areas, objectives of financial management, financial forecasting, working capital management, valuation of stocks, valuation of fixed income securities, project cash flow analysis, capital budgeting and decision making, determination of the required rate of return via asset pricing models, dividend policy, debt policy, introduction to financial risk management and derivatives and role of financial markets in Pakistan.

Equivalent Course(s) BA 3601

Course Name	Marketing Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5106	**Prerequisite(s)**	BA 5404

Course Description

The course introduces the concept of customer and market-driven management. This course covers organizations' external and internal environment, strengths, weaknesses, opportunities and threats, marketing information system, buyer behavior analysis, segmenting, targeting and positioning strategies, product and pricing strategies, an in-depth study of strategy building by organizations with the help of case studies and a practical, hands-on learning experience of marketing management through close observations of marketing management at different levels in marketing channels.

Equivalent Course(s) BA 3602

Course Name	Applied Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BA 5501	**Prerequisite(s)**	None

Course Description

This course equips students with the essential tools of research which forms the basis of sound decision-making. Through an applied approach using term report supplemented by classroom discussions and presentations, students gain knowledge of converting a business issue into a research problem; and applying the most appropriate methodology to solve this problem. The course provides an overview of applied research methodology and statistics. The general aims are to provide a) an advanced understanding of research methods and data analysis, b) enhanced research literacy, and c) a greater understanding of the way in which research methodology and statistics are interwoven with theory and the practice.

Equivalent Course(s) None

1.2.1 Master of Business Administration in (MBA)

Course Name	Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5205	**Prerequisite(s)**	BA 5207

Course Description

This course examines the role of the human resource professional, as a strategic partner, in managing contemporary organizations. The course introduces concepts, issues and practices in human resource management such as Human Resource planning, job design and analysis, recruitment and selection, training and development, performance appraisal, compensation and benefit management, career planning and development, employee relations, appraising the implications of legal and global environments and analyzing the current issues (such as diversity training, sexual harassment policies, rising benefit costs), and best practices of employers of choice.

Equivalent Course(s) BA 4804

Course Name	Cost and Management Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 5411	**Prerequisite(s)**	BA 5301

Course Description

This course introduces cost concepts, classifications, behaviors, and assignment, usage of quantitative and qualitative tools and methods of preparing spreadsheet models to analyze data, account for specific industries and organizational structures, understand advantages, disadvantages, and appropriate usage of job-order costing, process costing, activity-based costing, variable costing, and standard costing, and computing and interpreting variances from budgets and standards.

Equivalent Course(s) BA 2408

Course Name	Strategic Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5104	**Prerequisite(s)**	BA 5419, BA 5106
			BA 5105

Course Description

The course covers various aspects of strategic management, information inputs, concepts of mission and objectives, strategy formulation, action plan choice, strategy selection and evaluation, function strategy evaluation, strategy implementation and strategic control.

Equivalent Course(s) None

1.2.1 Master of Business Administration in (MBA)

Course Name	Strategic Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 5208	**Prerequisite(s)**	BA 5105, BA 5401 BA 5411
Course Description	This is an advanced course in finance that focuses upon the linkages that exist between corporate strategy and objectives, financial policy and financing strategies, corporate governance, and the creation and allocation of wealth. It also discusses the appropriate tools that can be applied to structuring and managing the business and financial affairs of a firm under varying conditions.		
Equivalent Course(s)	None		

Course Name	Entrepreneurship	**Credit Hours**	**3** (3,0)
Course Code	BA 5406	**Prerequisite(s)**	BA 5401, BA 5404
Course Description	This course focuses on ways in which entrepreneurs recognize opportunities, generate ideas, and organize resources to plan and run successful ventures that enable them to achieve their goals. Students are required to create an entrepreneurial venture as part of a practical learning activity. Through this hands-on experience, case studies, class discussions and text book readings students will have an opportunity to develop the values, traits, and skills most often associated with successful entrepreneurs.		
Equivalent Course(s)	BA 3502		

Course Name	Strategic Marketing	**Credit Hours**	**3** (3,0)
Course Code	BA 5203	**Prerequisite(s)**	BA 5404, BA 5106
Course Description	This course addresses topics such as business and marketing strategies, business strategy and competitive advantage, marketing situation analysis, market segmentation, marketing target and positioning strategy, product portfolio strategy, price strategy, promotion strategy, marketing strategy implementation and control. The focus is on the analysis and decision making process from strategic point of view. Additionally, understanding of how marketing interacts with other levels of strategy and integrate with all the other departments within the organization.		
Equivalent Course(s)	None		

1.1.2 Master of Business Administration in (MBA)

Course Name	Strategic Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5318	**Prerequisite(s)**	BA 5205

Course Description

This course equips students to take strategic human resource decisions. The course is designed to involve students in practical activities ranging from assessment of the global economic environment and organizational culture to the analysis of competencies and the implementation of human resource decisions. Students carry out a detailed strategic analysis of a human resource management issue in organizations and, in doing so learn how to contribute in improving the performance, productivity, and morale.

Equivalent Course(s) None

Course Name	International Business	**Credit Hours**	**3** (3,0)
Course Code	BA 5308	**Prerequisite(s)**	None

Course Description

This course develops an understanding of the worldwide developments and foundations for international business and the cultural context for managing in an overseas environment. It provides an understanding of the macroeconomic and political changes that have taken place in the era of globalization and beyond globalization. It also helps to investigate the political economy of international business, trade and investment, In addition describes and explains trade and the investment environment in which international business transactions occurs.

Equivalent Course(s) None

Course Name	Business Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5509	**Prerequisite(s)**	BA 5501

Course Description

Students are required to work in teams on a specific industry challenge faced by a company. The project work usually involves carrying out research and/or performing sound strategic analysis for identifying solutions to the problem. Client organizations benefit a great deal from the solutions proposed by the students. The objectives of this project work are to enhance the practical side of the learning process, to internalize managerial concepts, and to develop creative and applicable solutions.

Equivalent Course(s) BA 5109, BA 5609

1.2.1 Master of Business Administration in (MBA)

Course Name	Academic Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5609	**Prerequisite(s)**	BA 5501

Course Description

The Academic Research Project course is the application of the theory and concepts learned across various courses in MBA program. It is a team-based project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) BA 5109, BA 5509

Course Name	Thesis	**Credit Hours**	**6** (6,0)
Course Code	BA 5109	**Prerequisite(s)**	BA 5501

Course Description

The Thesis is the application of the theory and concepts learned across various courses in MBA program. It is an individual project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) BA 5509, BA 5609

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Students enrolled for the Master of Business Administration Banking and Finance-36 Credits Hours (MBA B&F-36 CHs) program, are required to complete 10 courses and Academic Research Project or Business Research Project within five (5) years. The break-up of the 10 courses is as follows:

- *6 Compulsory Courses (18 Credit Hours)*
- *4 Elective Courses[6] (12 Credit Hours)*
- *1 Academic Research Project/Business Research Project (6 Credit Hours)*

MBA B&F-36 Credit Hours

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BA 5501	Applied Research Methods	56
BA 5132	Analysis of Financial Statements	56
BA 5235	Treasury and Funds Management	56
BA 5xxx	Elective-I	217
	Spring Semester	
BA 5139	Financial Risk Analysis	57
BA 5175	Banking Operations	57
BA 5273	Prudential Regulations	57
BA 5xxx	Elective-II	217
	Second Year	
	Fall Semester	
BA 5xxx	Elective-III	217
BA 5xxx	Elective-IV	217
BA 5509/ BA 5609	Business Research Project/Academic Research Project	58

All courses may not be offered every year. Alternative courses may be substituted as and when required.

6 List of Electives is given in Appendix B.

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Applied Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BA 5501	**Prerequisite(s)**	None

Course Description

This course equips students with the essential tools of research which forms the basis of sound decision-making. Through an applied approach using term report supplemented by classroom discussions and presentations, students gain knowledge of converting a business issue into a research problem; and applying the most appropriate methodology to solve this problem. The course provides an overview of applied research methodology and statistics. The general aims are to provide a) an advanced understanding of research methods and data analysis, b) enhanced research literacy, and c) a greater understanding of the way in which research methodology and statistics are interwoven with theory and the practice.

Equivalent Course(s) None

Course Name	Analysis of Financial Statements	**Credit Hours**	**3** (3,0)
Course Code	BA 5132	**Prerequisite(s)**	None

Course Description

This course includes detailed analysis of financial statements of manufacturing and services sector. The topics include; cash flow statement and statement of owner's equity; accounting principles; financial analysis; and reporting process. Further, the course also includes; ratio analysis, trend analysis, and horizontal and vertical analysis, operating and financial leverage, financial reporting practice and their impact on a firm's performance analysis.

Equivalent Course(s) None

Course Name	Treasury and Funds Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5235	**Prerequisite(s)**	None

Course Description

The course focuses on the banking aspects of treasury and funds management and it enables budding financial managers to gain insights into different treasury products and their features. The course incorporates practical aspects pertaining to the actual dealing room scenarios including but not limited to dealing ethics, and actual transaction types. It covers the understanding of Financial Institutions (FIs), financial instruments, and linkages between the financial system and the macro-economy, elaborates on how interest rates are determined, and the role of the federal reserve in formulating monetary policy.

Equivalent Course(s) None

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Financial Risk Analysis	**Credit Hours**	**3** (3,0)
Course Code	BA 5139	**Prerequisite(s)**	BA 5132

Course Description

This course focuses on the risks faced by the manager of a portfolio of financial assets. Such risks include credit, liquidity, interest rate, currency, and country risks. These risks frequently have lumpy and unpredictable characteristics. Elements of immeasurability often frustrate the empirical estimation of the potential impacts of such risks. The course examines the various risk management techniques used by financial managers to address these problems, and the strengths and limitations of each of the techniques within an operational business setting.

Equivalent Course(s) None

Course Name	Banking Operations	**Credit Hours**	**3** (3,0)
Course Code	BA 5175	**Prerequisite(s)**	None

Course Description

Banking Operations areas includes, but is not limited to, various operations of commercial banks, central bank and Non-Banking Financial Institutions (NBFIs). The course covers; banking theory and practice, evolution and emerging trends in banking and financial markets, the role of central bank and other regulatory agencies, front office operations, bank payments, audit and internal control systems, financial management, compliance and reporting, operational planning, management information systems {Information and Communications Technology (ICT) & Business Processes}, products and services: deposits, credits, asset and liability management, trade finance, and asset finance.

Equivalent Course(s) None

Course Name	Prudential Regulations	**Credit Hours**	**3** (3,0)
Course Code	BA 5273	**Prerequisite(s)**	None

Course Description

This course focuses on the Prudential Regulations of the State Bank of Pakistan. In addition, this course introduces the current law and practices of State Bank and their implication for the banking industry stake holders like banks, consumers, and various corporate clients.

Equivalent Course(s) None

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Business Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5509	**Prerequisite(s)**	BA 5501

Course Description

Students are required to work in teams on a specific industry challenge faced by a company. The project work usually involves carrying out research and/or performing sound strategic analysis for identifying solutions to the problem. Client organizations benefit a great deal from the solutions proposed by the students. The objectives of this project work are to enhance the practical side of the learning process, to internalize managerial concepts, and to develop creative and applicable solutions.

Equivalent Course(s) BA 5109, BA 5609

Course Name	Academic Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5609	**Prerequisite(s)**	BA 5501

Course Description

The Academic Research Project course is the application of the theory and concepts learned across various courses in MBA-Banking & Finance program. It is a team-based project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s) BA 5109, BA 5509

MBA B&F (72 credit hours)

Students enrolled for the Master of Business Administration Banking and Finance-72 Credits Hours (MBA B&F-72 CHs) program, are required to complete 22 courses and 1 Academic Research Project or Business Research Project within five (5) years. The break-up of the 22 courses and project is as follows:

- *18 Compulsory Courses (54 Credit Hours)*
- *4 Elective Courses[7] (12 Credit Hours)*
- *1 Academic Research Project/Business Research Project (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BA 5301	Financial Accounting	60
BA 5302	Microeconomics	60
BA 5303	Management Principles	60
BA 5304	Business and Electronic Communication	60
BA 5305	Statistics and Mathematics for Business	61
BA 5403	Management Information Systems	61
	Spring Semester	
BA 5104	Strategic Management	61
BA 5105	Financial Management	62
BA 5106	Marketing Management	62
BA 5135	Financial Markets and Institutions	62
BA 5205	Human Resource Management	63
BA 5402	Macroeconomics	63
	Second Year	
	Fall Semester	
BA 5501	Applied Research Methods	63
BA 5132	Analysis of Financial Statements	64
BA 5235	Treasury and Funds Management	64
BA 5xxx	Elective-I	217
BA 5xxx	Elective-II	217
BA 5xxx	Elective-III	217
	Spring Semester	
BA 5139	Financial Risk Analysis	64
BA 5175	Banking Operations	65
BA 5509/ BA 5609	Business Research Project/Academic Research Project	65
BA 5273	Prudential Regulations	66
BA 5xxx	Elective-IV	217

All courses may not be offered every year. Alternative courses may be substituted as and when required.

7 List of Electives is given in Appendix B.

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Financial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 5301	**Prerequisite(s)**	None

Course Description

This course includes accounting for merchandise business, classified balance sheet, simple and multiple income statement, design of accounting system, accounts receivable, notes receivable, inventories, cost of goods sold, liabilities, corporation and measuring cash flow statements. Also, MS Excel is used and necessary accounting software is introduced.

Equivalent Course(s) BA 1201

Course Name	Microeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 5302	**Prerequisite(s)**	None

Course Description

Microeconomics is a basic introductory course for the students of management sciences. It is a comprehensive subject that aims at polishing basic economic principles that apply to day to day life. The course explains economic problems, demand and supply forces related to products and market structures.

Equivalent Course(s) BA 1102

Course Name	Management Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 5303	**Prerequisite(s)**	None

Course Description

This course introduces the basic concepts of management, evolution and emergence of management thought, management function, planning concepts, decision-making, organizing, staffing, leading, controlling, and future of management and society.

Equivalent Course(s) BA 1203

Course Name	Business and Electronic Communication	**Credit Hours**	**3** (3,0)
Course Code	BA 5304	**Prerequisite(s)**	None

Course Description

This introductory course teaches students to communicate at both personal and professional levels. In addition, it develops competency in all forms of communication. This course introduces communication theories and strategies for a variety of business situations. Using a developmental approach to business communication, the course examines methods for organizing ideas, analyzing data, addressing diverse concerns, presenting information, and developing a professional communication style.

Equivalent Course(s) BA 2406

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Statistics and Mathematics for Business	**Credit Hours**	**3** (3,0)
Course Code	BA 5305	**Prerequisite(s)**	None

Course Description

The statistical portion of this course consists of three parts. The first part consists of the introduction to statistics, types of data, frequency distribution, graphs, and charts. The second part covers measures of central tendency, and measures of dispersion. The third part is based on the concept of curve fitting techniques, regression analysis, correlation analysis, and MS Excel tools for statistics using add-on analysis tool pack. The mathematical portion of this course is covered by three parts. The first part based on systems of linear equations and its solutions: construction of linear and quadratic equations, graphical interpretation of data, systems of linear equations and solutions, introduction to matrix algebra, determinants, cramer's rule and inverse method. The second part develops the concept of linear and nonlinear functions, and differentiation of basic functions with applications. The third part includes, higher order differentiation, optimization of functions, linear programming, and simplex method. The aim of this course is to prepare student to solve economic and managerial research problem through quantitative tools.

Equivalent Course(s) BA 2305, BA 2311, SS 2318

Course Name	Management Information Systems	**Credit Hours**	**3** (3,0)
Course Code	BA 5403	**Prerequisite(s)**	None

Course Description

This course covers different information technology applications in business for efficient management of business operations by providing support to decision makers for strategic business decisions. The course examines various corporate frameworks for information management and their utility.

Equivalent Course(s) BA 4704

Course Name	Strategic Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5104	**Prerequisite(s)**	BA 5303

Course Description

The course covers various aspects of strategic management, information inputs, concepts of mission and objectives, strategy formulation, action plan choice, strategy selection and evaluation, function strategy evaluation, strategy implementation and strategic control.

Equivalent Course(s) None

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Financial Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5105	**Prerequisite(s)**	None

Course Description

Financial management helps students in exploring the depths of the relatively complex aspects of the financial world, with prime focus on the present value and opportunity cost of capital. This course covers topics such as nature, scope and function of financial decision areas, objectives of financial management, financial forecasting, working capital management, valuation of stocks, valuation of fixed income securities, project cash flow analysis, capital budgeting and decision making, determination of the required rate of return via asset pricing models, dividend policy, debt policy, introduction to financial risk management and derivatives and role of financial markets in Pakistan.

Equivalent Course(s) BA 3601

Course Name	Marketing Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5106	**Prerequisite(s)**	None

Course Description

The course introduces the concept of customer and market-driven management. This course covers organizations' external and internal environment, strengths, weaknesses, opportunities and threats, marketing information system, buyer behavior analysis, segmenting, targeting and positioning strategies, product and pricing strategies, an in-depth study of strategy building by organizations with the help of case studies and a practical, hands-on learning experience of marketing management through close observations of marketing management at different levels in marketing channels.

Equivalent Course(s) BA 3602

Course Name	Financial Markets and Institutions	**Credit Hours**	**3** (3,0)
Course Code	BA 5135	**Prerequisite(s)**	None

Course Description

A theoretical course that focuses on financial markets includes bond, equity and the effect of the economy upon the markets when funds are injected into the economic system through financial intermediaries. Topics include; interest rates the flow of funds, capital markets, debt market, money markets and their relationship with changing financial services and regulatory agencies. Other topics include roles of banks, finance companies, insurance companies and fund management companies. The study of Financial Market and Institutions (FMI) is one of the most important areas for finance and business students. The course has been designed to enable the students to understand the existing setup of financial markets, instruments and institutions.

Equivalent Course(s) BA 3501

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5205	**Prerequisite(s)**	BA 5303

Course Description

This course examines the role of the human resource professional, as a strategic partner, in managing contemporary organizations. The course introduces concepts, issues and practices in human resource management such as Human Resource planning, job design and analysis, recruitment and selection, training and development, performance appraisal, compensation and benefit management, career planning and development, employee relations, appraising the implications of legal and global environments and analyzing the current issues (such as diversity training, sexual harassment policies, rising benefit costs), and best practices of employers of choice.

Equivalent Course(s) BA 4804

Course Name	Macroeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 5402	**Prerequisite(s)**	BA 5302

Course Description

This course introduces key economic indicators, role of government in an economy, measurement of gross domestic product, components of aggregate demand, consumption function and Keynesian multiplier, investment function, government intervention through monetary and fiscal policies, impact of government intervention on economic activity, inflation and unemployment, aggregate supply and demand, balance of payments and trade, public finance, growth, and development.

Equivalent Course(s) BA 1202

Course Name	Applied Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BA 5501	**Prerequisite(s)**	None

Course Description

This course equips students with the essential tools of research which forms the basis of sound decision-making. Through an applied approach using term report supplemented by classroom discussions and presentations, students gain knowledge of converting a business issue into a research problem; and applying the most appropriate methodology to solve this problem. The course provides an overview of applied research methodology and statistics. The general aims are to provide a) an advanced understanding of research methods and data analysis, b) enhanced research literacy, and c) a greater understanding of the way in which research methodology and statistics are interwoven with theory and the practice.

Equivalent Course(s) None

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Analysis of Financial Statements	**Credit Hours**	**3** (3,0)
Course Code	BA 5132	**Prerequisite(s)**	BA 5301, BA 5105

Course Description

This course includes detailed analysis of financial statements of manufacturing and services sector. The topics include; cash flow statement and statement of owner's equity; accounting principles; financial analysis; and reporting process. Further, the course also includes; ratio analysis, trend analysis, and horizontal and vertical analysis, operating and financial leverage, financial reporting practice and their impact on a firm's performance analysis.

Equivalent Course(s) None

Course Name	Treasury and Funds Management	**Credit Hours**	**3** (3,0)
Course Code	BA 5235	**Prerequisite(s)**	BA 5105, BA 5132

Course Description

The course focuses on the banking aspects of treasury and funds management and it enables budding financial managers to gain insights into different treasury products and their features. The course incorporates practical aspects pertaining to the actual dealing room scenarios including but not limited to dealing ethics, and actual transaction types. It covers the understanding of Financial Institution (FIs), financial instruments, and linkages between the financial system and the macro-economy, elaborates on how interest rates are determined, and the role of the federal reserve in formulating monetary policy.

Equivalent Course(s) None

Course Name	Financial Risk Analysis	**Credit Hours**	**3** (3,0)
Course Code	BA 5139	**Prerequisite(s)**	BA 5132

Course Description

This course focuses on the risks faced by the manager of a portfolio of financial assets. Such risks include credit, liquidity, interest rate, currency, and country risks. These risks frequently have lumpy and unpredictable characteristics. Elements of immeasurability often frustrate the empirical estimation of the potential impacts of such risks. The course examines the various risk management techniques used by financial managers to address these problems, and the strengths and limitations of each of the techniques within an operational business setting.

Equivalent Course(s) None

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Banking Operations	**Credit Hours**	**3** (3,0)
Course Code	BA 5175	**Prerequisite(s)**	BA 5105, BA 5135

Course Description

Banking Operations areas includes, but is not limited to, various operations of commercial banks, central bank and and Non-Banking Financial Institutions (NBFIs). The course covers; banking theory and practice, evolution and emerging trends in banking and financial markets, the role of central bank and other regulatory agencies, front office operations, bank payments, audit and internal control systems, financial management, compliance and reporting, operational planning, management information systems {Information and Communications Technology (ICT) & Business Processes}, products and services: deposits, credits, asset and liability management, trade finance, and asset finance.

Equivalent Course(s)

None

Course Name	Business Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5509	**Prerequisite(s)**	BA 5501

Course Description

Students are required to work in teams on a specific industry challenge faced by a company. The project work usually involves carrying out research and/or performing sound strategic analysis for identifying solutions to the problem. Client organizations benefit a great deal from the solutions proposed by the students. The objectives of this project work are to enhance the practical side of the learning process, to internalize managerial concepts, and to develop creative and applicable solutions.

Equivalent Course(s)

BA 5109, BA 5609

Course Name	Academic Research Project	**Credit Hours**	**6** (6,0)
Course Code	BA 5609	**Prerequisite(s)**	BA 5501

Course Description

The Academic Research Project course is the application of the theory and concepts learned across various courses in MBA program. It is a team-based project to demonstrate the understanding of interdisciplinary knowledge and soft skills. It is based on identifying and solving a problem from any one specific field of business e.g. management, marketing, finance, or human resource management. It consists of understanding the real life business and industry problem, formulating the research questions, identifying appropriate methodology to answer the research questions, collecting and analyzing data from the field, and reporting the findings, by using the scientific methods of research.

Equivalent Course(s)

BA 5109, BA 5509

1.2.2 Master of Business Administration in Banking & Finance (MBA B&F)

Course Name	Prudential Regulations	**Credit Hours**	**3** (3,0)
Course Code	BA 5273	**Prerequisite(s)**	BA 5135

Course Description	This course focuses on the Prudential Regulations of the State Bank of Pakistan. In addition, this course introduces the current law and practices of State Bank and their implication for the banking industry stake holders like banks, consumers, and various corporate clients.
Equivalent Course(s)	None

1.2.3 Master in Project Management (MPM)

Students enrolled in the Master in Project Management (MPM) program are required to complete 33 credit hours within five (5) years. The breakup of the courses is as follows:

- *8 Compulsory Courses (24 Credit Hours)*
- *2 Elective Courses[8] (6 Credit Hours)*
- *1 Project (3 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
PM 5101	Financial Management for Project Management	68
PM 5102	Fundamentals of Project Management	68
PM 5310	SAP Training*	68
PM 5xxx	Elective-I	217
	Spring Semester	
PM 5103	Project Cost Management	69
PM 5201	Project Scheduling, Planning and Time Management	69
PM 5301	Project Quality Management	70
PM 5309	Project in Primavera	70
PM 5xxx	Elective-II	217
	Summer Semester	
PM 5209	Project	70
PM 5303	Project Monitoring, Evaluation and Control Management	71

* May alternatively be exchanged with "IT Tools for Project Management[9]" or "Enterprise Project Management.

All courses may not be offered every year. Alternative courses may be substituted as and when required.

8 List of Electives is given in Appendix B.

9 The course description is given on page # 69.

1.2.3 Master in Project Management (MPM)

Course Name	Financial Management for Project Management	**Credit Hours**	**3** (3,0)
Course Code	PM 5101	**Prerequisite(s)**	None

Course Description

This course is designed to introduce the concept of project finance, which includes financing of projects based upon the projected cash flows of the project. It helps in understanding the strategic and technical components of project finance. Strategic elements of project financing include an understanding of project screening, value-for-money analysis, and risk mitigation and allocation. Technical elements of project financing include an understanding of the data and relevant assumptions, sensitivity analyses, tariffs, projecting cash flow, NPV & IRR returns, and cost of capital–all critical in building and interpreting the actual financial model.

Equivalent Course(s) None

Course Name	Fundamentals of Project Management	**Credit Hours**	**3** (3,0)
Course Code	PM 5102	**Prerequisite(s)**	None

Course Description

This introductory course provides basic knowledge regarding; organization, planning, and controlling of projects, and practical knowledge on managing project scope, schedule, and resources. It includes various topics like project life cycle, work break-down structure and Gantt charts, network diagrams, scheduling techniques, and resource allocation decisions. Theoretical concepts are supplemented through practical team projects and tutorials using project management software. The purpose of this course is to familiarize students with all terms and processes of project management and to let them have an enriched flavor of working in teams.

Equivalent Course(s) None

Course Name	SAP Training	**Credit Hours**	**3** (3,0)
Course Code	PM 5310	**Prerequisite(s)**	None

Course Description

The course is designed to provide participants an overview of the basic functions in SAP Project System for structuring, planning, executing, and monitoring projects. It is based on software release SAP ERP 6.0 with Enhancement Package 5. The course covers work breakdown structure, network, project builder, project planning board, progress tracking, access control list, scheduling, resource and material planning, cost and revenue planning, cash management, budgeting, reporting, and integration with other applications.

Equivalent Course(s) None

1.2.3 Master in Project Management (MPM)

Course Name	IT Tools for Project Management	**Credit Hours**	**3** (3,0)
Course Code	PM 5107	**Prerequisite(s)**	None

Course Description

The role and vitality of present and future project managers significantly depends on how they are able to handle and use the contemporary technological tools available around them for effective project planning and execution. As such the use of IT enabled platforms becomes imperative and gaining hands on experience on both Stand Alone and Server Based Project Management applications is a must. This course addresses this important aspect of Project Management (PM) by imparting HANDS-ON trainings of the participants on the latest available IT platforms through interactive discussions and realistic scenario building.

Equivalent Course(s) None

Course Name	Project Cost Management	**Credit Hours**	**3** (3,0)
Course Code	PM 5103	**Prerequisite(s)**	None

Course Description

This course provides the general approaches to cost management, such as the methods used to estimate costs, preparing budgets and controlling/monitoring a project's finances. It also furnishes the knowledge regarding the costing of a project from various approaches like top-down and bottom-up. In addition, the topics include preparation of feasibility reports for projects, forecasting the project cost, interrelationship of various cost control concepts, and possible responses of a project management team which will provide insight on whether a project is falling behind schedule or overrunning its budget in real time.

Equivalent Course(s) None

Course Name	Project Scheduling, Planning and Time Management	**Credit Hours**	**3** (3,0)
Course Code	PM 5201	**Prerequisite(s)**	None

Course Description

This course utilizes PMI's industry standard for the schedule management process and the Microsoft Project Scheduling Application which can be applied immediately to real-life projects. The course begins with the process of planning and developing of the right size schedule and making sure that it aligns with the current Work Breakdown Structure (WBS). By utilizing the Precedence Diagramming Method (PDM) the learners are able to develop the activity list, apply activity sequencing methodology, perform activity duration estimating with risk infusion, and even perform schedule optimization using Critical Path Methodology (CPM). The course also provides different techniques to evaluate impact of time delays of different activities through Project Evaluation and Review Technique (PERT).

Equivalent Course(s) None

1.2.3 Master in Project Management (MPM)

Course Name	Project Quality Management	**Credit Hours**	**3** (3,0)
Course Code	PM 5301	**Prerequisite(s)**	None

Course Description

The course aims to give a broad understanding of various concepts and techniques used in project quality management such as quality concept in project management, quality planning, tools of quality management, quality assurance, quality monitoring and control, quality partnership, and customer satisfaction indices. The course also equips the students regarding different quality standards like, ISO 9000:2008, and six-sigma. The course also covers quality implementation and review techniques in project management with practical approaches to project quality planning, project quality assurance, continuous quality improvement and project performance measurement through various quality metrics.

Equivalent Course(s) None

Course Name	Project in Primavera	**Credit Hours**	**3** (3,0)
Course Code	PM 5309	**Prerequisite(s)**	None

Course Description

This course provides hands-on training for Primavera's client/server based solution. Participants gain a thorough background in the concepts of planning and scheduling, resource and cost management. It is based on hands-on workshops that create and track an entire project to completion. The major areas covered in this training course are; maintaining the project documents library, assigning and analyzing resources and costs, optimizing project plan, project execution and control, reporting performance, top-down budgeting and estimating, Primavera report wizard, Primavera report editor, exporting data directly to other applications, and publishing Primavera data.

Equivalent Course(s) None

Course Name	Project	**Credit Hours**	**3** (3,0)
Course Code	PM 5209	**Prerequisite(s)**	None

Course Description

This course is based upon industry-linked project that emphasizes to utilize concepts, theories, tools, and techniques learned in various courses of project management. The course is based on teams that undertake a real-life project from the industry, government or non-governmental organizations. Major emphasis is placed on utilization of project management skill and tools learned in the classroom, communication skills, technical writing, and regular interaction with industry representatives along with the course facilitator. The overall goal of the course is to experience modern project management practices and develop interpersonal skills to handle real projects under real constraints by realizing the contextual information.

Equivalent Course(s) None

1.2.3 Master in Project Management (MPM)

Course Name	Project Monitoring, Evaluation and Controlling Management	**Credit Hours**	**3** (3,0)
Course Code	PM 5303	**Prerequisite(s)**	None

Course Description

The aim of this course is to develop the analysis and reporting skills necessary for project managers to monitor, evaluate, assess, and control projects. It equips participants with core theoretical, as well as, hands-on practical knowledge of standard project management practices used to develop a comprehensive configuration management and change control mechanism, which enables them to bring their projects back on track. The focus of this course is to bring to the participants the proven techniques, guidelines, and strategies for successfully completing projects within resources and under hard and soft constraints.

Equivalent Course(s) None

1.2.4 Executive Master of Business Administration (EMBA)

Students enrolled in the Executive Master of Business Administration (EMBA) program are required to complete 20 Course and 01 Business Project & Research Project within five (5) years. The break-up of 20 courses & projects (66 credit hours) is as follows:

- *17 Compulsory Courses (51 Credit Hours)*
- *3 Elective[10] Courses (9 Credit Hours)*
- *1 Business Project (3 Credit Hours)*
- *1 Research Project (3 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BE 417	Accounting for Business	73
BE 447	Managerial Communication	73
BE 451	Business Application of IT	73
BE 492	Business Management	73
	Spring Semester	
BE 413	Quantitative Analysis for Decision Making	74
BE 415	Contemporary Marketing	74
BE 416	Organizational Behavior	74
BE 421	Economics for Business	75
BE 443	Entrepreneurship and Family Businesses	75
	Summer Semester	
BE 414	Business Finance	75
BE 418	Business Research Methods	76
	Second Year	
	Fall Semester	
BE 423	Human Resource Management	76
BE 434	Marketing Management	76
BE 478	Business Project	77
BE 4xx	Elective-I (Marketing, HR, Finance and Supply Chain)	218
	Spring Semester	
BE 419	Strategic Management	77
BE 444	Ethics and Corporate Governance	77
BE 445	Managerial Accounting and Control	77
BE 4xx	Elective-II (Marketing, HR, Finance and Supply Chain)	218
BE 4xx	Elective-III (Marketing, HR, Finance and Supply Chain)	218
	Summer Semester	
BE 448	Research Project	78
BE 449	Operations and Supply Chain Management	78

All courses may not be offered every year. Alternate courses may be substituted as and when required.

10 List of Electives is given in Appendix B.

1.2.4 Executive Master of Business Administration (EMBA)

Course Name	Accounting for Business	**Credit Hours**	**3** (3,0)
Course Code	BE 417	**Prerequisite(s)**	None

Course Description

This course covers the basic accounting principles and concepts of financial accounting. The topics include accounting for merchandise business, classified balance sheet, simple and multiple steps income statement, design of accounting system, accounts receivable, notes receivable, inventories, cost of goods sold, liabilities, and stockholders equity.

Equivalent Course(s) None

Course Name	Managerial Communication	**Credit Hours**	**3** (3,0)
Course Code	BE 447	**Prerequisite(s)**	None

Course Description

This course is designed to develop the application of written, oral, and interpersonal communication theory in the business management environment. Areas of emphasis include the role of communication in contemporary organizations, considerations of message production and reception, internal versus external audiences, communicating change, intercultural communication, and ethics.

Equivalent Course(s) BA 5418

Course Name	Business Application of IT	**Credit Hours**	**3** (3,0)
Course Code	BE 451	**Prerequisite(s)**	None

Course Description

The course discusses why technology and IT systems are needed in organizations and how they help improve on business model enablement, process rationalization and improvement, and customer product/service delivery. The course introduces students to computer software system development, life-cycle, and highlight the problems and enhancements that business organizations are facing with in this changing day and age. Solutions are formulated through analysis of operations, business goals and 'business modeling', while product and services roadmaps are analyzed for possible technological solutions.

Equivalent Course(s) None

Course Name	Business Management	**Credit Hours**	**3** (3,0)
Course Code	BE 492	**Prerequisite(s)**	None

Course Description

This course introduces the basic concepts of management, evolution and emergence of management thought, management function, planning concepts, decision-making, organizing, staffing, leading, controlling, and future perspective of management and society. The course also introduces contemporary ethical issues faced by the business community.

Equivalent Course(s) BA 5419

1.2.4 Executive Master of Business Administration (EMBA)

Course Name	Quantitative Analysis for Decision Making	**Credit Hours**	**3** (3,0)
Course Code	BE 413	**Prerequisite(s)**	None

Course Description	The fundamental aim of this course is to develop the students' ability to use quantitative techniques for decision making. This course contains the tools of statistical analysis, both descriptive and inferential, to make decisions about parameters of a population. The technique of testing hypothesis would help to make decision concerning selection between alternatives. The regression analysis and the analysis of variance included in the outline helps in precise prediction, as well as, formulation of strategies objectively. Moreover, linear programming technique helps in the optimum allocation of resources.
Equivalent Course(s)	None

Course Name	Contemporary Marketing	**Credit Hours**	**3** (3,0)
Course Code	BE 415	**Prerequisite(s)**	None

Course Description	The course is designed for professionals to share the current and future development in the field of marketing and to bring students at a level where they will be able to apply experiential learning, problem solving, analytical, and decision-making skills to real situations. This course promotes the capacity to take initiatives and develop independence of thought in a supportive framework-qualities universally identified as being essential to industrial and commercial needs.
Equivalent Course(s)	BA 5404

Course Name	Organizational Behavior	**Credit Hours**	**3** (3,0)
Course Code	BE 416	**Prerequisite(s)**	BE 492

Course Description	The course covers the subject matter on three levels: individual, group and interpersonal, and organizational. At the individual level, the focus is to examine individual behavior and differences, learning, perception, personality, motivation, and stress. The group/interpersonal level covers group and inter-group behavior, creativity, and team decision-making. It also includes power, conflict, leadership, and communication. At the organizational level, it reviews the basics of organizational culture, organizational change and development, structure, design, employment relationship, and career management.
Equivalent Course(s)	BA 5207

1.2.4 Executive Master of Business Administration (EMBA)

Course Name	Economics for Business	**Credit Hours**	**3** (3,0)
Course Code	BE 421	**Prerequisite(s)**	None

Course Description

This course aims at imparting knowledge of basic economic principles to the business students. It covers micro-and macroeconomic issues that are essential for managers and professionals. The course starts with basic microeconomics concepts such as demand, supply, elasticity, production and cost. Having established the solid ground of the basics of microeconomics, parts of macroeconomics including national income accounts, aggregate demand, aggregate supply, concepts of inflation and unemployment, exchange rate, balance of payments, international trade, business cycles, money and banking, economic growth & major macroeconomic policy operations are dealt with. After completing the course the students will be able to apply principles of economics to understand and analyze economic problems being faced by both public and private sectors of Pakistan.

Equivalent Course(s) BA 5408

Course Name	Entrepreneurship and Family Businesses	**Credit Hours**	**3** (3,0)
Course Code	BE 443	**Prerequisite(s)**	BE 492

Course Description

This course is designed to teach the conceptual foundations of entrepreneurship, strategic areas of business, entrepreneurial perspective, process, ventures, practices, characteristics, entrepreneurship and new free enterprise, product and service concepts, marketing and new venture development, entrepreneurial team and business formation, and applying various tools and analytical techniques to the new venture creation process in domestic and international settings.

Equivalent Course(s) BA 5406

Course Name	Business Finance	**Credit Hours**	**3** (3,0)
Course Code	BE 414	**Prerequisite(s)**	BE 417

Course Description

This course covers the concepts of business environment, forms of business organization, overview of financial environment, cost markets, institutions and interest rates, analyses of financial statements, time value of money, sources of short-term and long-term finance, break even analysis, working capital management, valuation of financial securities (debt/equity) and introduction to capital budgeting.

Equivalent Course(s) BA 5105

1.2.4 Executive Master of Business Administration (EMBA)

Course Name	Business Research Methods	**Credit Hours**	**3** (3,0)
Course Code	BE 418	**Prerequisite(s)**	BE 413

Course Description

This course provides the understanding of basic business research methods in the field of marketing, human resource management, and finance. The subject encompasses the theory and practice of research; and covers concepts, elements, and process of conducting business research. It builds the specific conceptual knowledge regarding identification and elicitation of research problem, development of research proposal, reviewing the literature, using suitable research methodology, data collection and analysis tools and writing research report. The focus of the course is on basic concept building and relating research to real life business problems.

Equivalent Course(s) None

Course Name	Human Resource Management	**Credit Hours**	**3** (3,0)
Course Code	BE 423	**Prerequisite(s)**	BE 416

Course Description

This course examines the role of the human resource professional as a strategic partner in managing contemporary organizations. The course introduces concepts, issues and practices in human resource management such as Human Resource (HR) planning, job design and analysis, recruitment and selection, training and development, performance appraisal, compensation and benefit management, career planning and development, employee relations, appraising the implications of legal and global environments and analyzing the current issues (such as diversity training, sexual harassment policies, rising benefit costs), and best practices of employers of choice.

Equivalent Course(s) BA 5205

Course Name	Marketing Management	**Credit Hours**	**3** (3,0)
Course Code	BE 434	**Prerequisite(s)**	BE 415

Course Description

The course introduces the concept of customer and market-driven management. This course covers organizations' external and internal environment, strengths, weaknesses, opportunities and threats, marketing information system, buyer behavior analysis, segmenting, targeting and positioning strategies, product and pricing strategies, an in-depth study of strategy building by organizations with the help of case studies and a practical, hands-on learning experience of marketing management through close observations of marketing management at different levels in marketing channels.

Equivalent Course(s) BA 5106

1.2.4 Executive Master of Business Administration (EMBA)

Course Name	Business Project	**Credit Hours**	**3** (3,0)
Course Code	BE 478	**Prerequisite(s)**	BE 418

Course Description

This course is designed to ensure that the students demonstrate their understanding to develop a business strategy for the existing or new business organization by utilizing the theories, concepts, and knowledge learnt during the whole program. It also ensures students' ability to critically evaluate the process of business innovation with particular reference to the groups work and experience and to generate business ideas, to screen these ideas, and to develop a realistic plan for development and implementation of a selected idea.

Equivalent Course(s) None

Course Name	Strategic Management	**Credit Hours**	**3 (3,0)**
Course Code	BE 419	**Prerequisite(s)**	BE 414, BE 423
			BE 492

Course Description

The course covers strategic management, information inputs, concepts of mission and objectives, strategy formulation, action plan choice, strategies selection and evaluation, function strategy evaluation, strategy implementation, and strategic control.

Equivalent Course(s) BA 5104

Course Name	Ethics and Corporate Governance	**Credit Hours**	**3** (3,0)
Course Code	BE 444	**Prerequisite(s)**	BE 492

Course Description

This course is designed so students can gain knowledge about the area of Corporate Governance & Business Ethics from different perspectives and its application. To understand and apply the concepts learned from various models to different corporate environment and to understand the mechanisms of controls, accountability and compliance. To provide effective management and decision-making skills.

Equivalent Course(s) None

Course Name	Managerial Accounting and Control	**Credit Hours**	**3** (3,0)
Course Code	BE 445	**Prerequisite(s)**	BE 417, BE 414

Course Description

The course includes the study of management accounting for internal reporting and decision making. The course introduces a business management approach for the development and use of accounting information. Major topics include cost behavior, cost analysis, profit planning, and control measures.

Equivalent Course(s) None

1.2.4 Executive Master of Business Administration (EMBA)

Course Name	Research Project	**Credit Hours**	**3** (3,0)
Course Code	BE 448	**Prerequisite(s)**	BE 418

Course Description

The research has to be based on scientific study in a specialized field of business, such as Marketing, Finance, Human Resource Management, Management Information System etc. The course consists of understanding the real-life business problems and formulating the research techniques to solve them by using the scientific tools. It also helps to comprehend the research tools along with their application in specific areas.

Equivalent Course(s) None

Course Name	Operations and Supply Chain Management	**Credit Hours**	**3** (3,0)
Course Code	BE 449	**Prerequisite(s)**	BE 492

Course Description

This course serves as the macro perspective for operations. Students' learning is rounded in this course where they see how Strategy, Operations, Marketing, Sales, Finance, IT and Accounting work together to add to Operational Efficiency, Customer intimacy, and Product Innovation for companies. Understanding key supply chain foundations is crucial to any company's success and profitability. In this class students learn that supply chain and its significant impact on all aspects of business while gaining an understanding of the synchronism and synergies of all its components.

Equivalent Course(s) BA 3607

1.2.5 Master of Science in Project Management (MSPM)

Students enrolled in the Master of Science in Project Management (MSPM) program are required to complete 30 credit hours within five (5) years. The breakup of the courses is as follows:

- *4 Core Courses (12 Credit Hours)*
- *2 Elective Courses[11] (6 Credit Hours)*
- *2 Independent Study (6 Credit Hours)*
- *1 Thesis (6 Credit Hours) or 2 Additional Electives (3 Credit Hours Each)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
MP 5101	Managing Projects	80
MP 5103	Research Methodology	80
MP 5202	Quantitative Tools for Research	80
MP 5203	Operations Research	81
	Spring Semester	
MP 5xxx	Elective-I	218
MP 5xxx	Elective-II	218
MP 5108	Independent Study-I	-
MP 5208	Independent Study-II	-
	Second Year	
	Fall Semester	
MP 5xxx	Thesis/Elective-III*	218
MP 5xxx	Thesis/Elective-IV*	218

All courses may not be offered every year. Alternative courses may be substituted as and when required.

* Thesis may be substituted by the electives

11 List of Electives is given in Annexure B.

1.2.5 Master of Science in Project Management (MSPM)

Course Name	Managing Projects	**Credit Hours**	**3** (3,0)
Course Code	MP 5101	**Prerequisite(s)**	None

Course Description

This is an introductory course that will provide the broad knowledge regarding basic concepts and techniques used in Project Management. It will provide practical knowledge on managing project scope, schedule and resources. It includes various topics like: Project life cycle, work breakdown structure and Gantt charts, network diagrams, scheduling techniques and resource allocation decisions.

Equivalent Course(s) None

Course Name	Research Methodology	**Credit Hours**	**3** (3,0)
Course Code	MP 5103	**Prerequisite(s)**	None

Course Description

This course familiarizes participants with a range of approaches used in the management and project management research, with an emphasis on approaches commonly used in practical settings. The advantages and limitations of different research approaches are examined, as well as their applicability in different organizational contexts. Experience is provided in the; design of research studies; analysis and interpretation of data; and report writing and presentation. Participants acquire skills which will be useful in doing academic research independently in their chosen area of interest.

Equivalent Course(s) None

Course Name	Quantitative Tools for Research	**Credit Hours**	**3** (3,0)
Course Code	MP 5202	**Prerequisite(s)**	None

Course Description

Quantitative tools for Research course is designed to introduce students to some of the statistical and mathematical techniques that are widely used in empirical work in management and other related disciplines. It covers the basics of estimation and inference in the context of the single-equation linear regression model and simultaneous equation models.

Equivalent Course(s) None

1.2.5 Master of Science in Project Management (MSPM)

Course Name	Operations Research	**Credit Hours**	**3** (3,0)
Course Code	MP 5203	**Prerequisite(s)**	None

Course Descripotion

Operations Research (or) has many applications in science, engineering, economics, and industry. Thus the ability to solve OR problems is crucial for both researchers and practitioners. Being able to solve the real life problems and obtaining the right solution requires understanding plus modeling the problem correctly and applying appropriate optimization tools and skills to solve the mathematical model. The goal of this course is to teach students to formulate, analyze, and solve mathematical models that represent real-world problems. It will also involve use of EXCEL for solving optimization problems. In particular, it will cover linear programming, network flow problems, integer programs, nonlinear programs, dynamic programming and queuing models

Equivalent Course(s)

None

1.2.6 Master of Science in Management Sciences (MSMS)

Students enrolled in the Master of Science in Management Sciences (MSMS) program are required to complete 30 credits hours within five (5) years. Minimum time to complete MS is 1½ years.
A student can take six courses (18 credit hours), two Independent Research Studies (6 credit hours) and a thesis (6 credit hours) to complete MS degree with minimum 30 credit hours. In lieu of thesis two elective courses can be taken to complete the credit hours requirement. Break-up of 30 credit hours courses is as follows:

- *4 Compulsory Courses(12 Credit Hours)*
- *2 Elective[12] Courses (6 Credit Hours)*
- *2 Independent Research Studies (6 Credit Hours)*
- *1 Thesis (6 Credit Hours) OR 2 additional courses instead of Thesis (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
MS 5204	Quantitative Tools for Research	83
MS 5137	Research Methods and Techniques	83
MS 5416	Research Philosophy	83
MS 5xxx	Elective-I	219
	Spring Semester	
MS 5xxx	Elective-II	219
MS 5131	Qualitative Research Methods	84
MS 5119	Independent Research Study-I	-
MS 5219	Independent Research Study-II	-
	Second Year	
	Fall Semester	
MS 5xxx	Electives III/ Thesis	219
MS 5xxx	Electives IV/Thesis	219

Summer is not a regular semester. Students can however register in IS/Thesis/Dissertation in 3 credit hours only.
All courses may not be offered every year. Alternate courses may be substituted as and when require

12 List of Electives is given in Appendix B.

1.2.6 Master of Science in Management Sciences (MSMS)

Course Name	Quantitative Tools for Research	**Credit Hours**	**3** (3,0)
Course Code	MS 5204	**Prerequisite(s)**	None

Course Description

Quantitative Tools for Research is a compulsory course at the MS level. It introduces students to the concepts of inferential statistics and quantitative research techniques in scientific investigation. The major areas of learning in this course include identification and application of quantitative tools in the scientific enquiry, quantitative analytical framework, data presentations, and interpretations of quantitative results of the research.

Equivalent Course(s) None

Course Name	Research Methods and Techniques	**Credit Hours**	**3** (3,0)
Course Code	MS 5137	**Prerequisite(s)**	None

Course Description

This course is designed to introduce the methods and techniques of quantitative research. It covers the philosophical underpinning, research designing, proposal development, method selection, sampling techniques, primary data collection tools, measurement and scaling, reliability and validity of the measurement tools, and reporting the research findings. A special emphasis will be given to the applications of business and economics in real life situations. The course is developed, designed, and delivered by process approach to inculcate the competences and skills to write and present the research articles.

Equivalent Course(s) None

Course Name	Research Philosophy	**Credit Hours**	**3** (3,0)
Course Code	MS 5416	**Prerequisite(s)**	None

Course Description

This course stems from the belief that an examination of the intimate relationship between philosophy and research is important and useful. One area where philosophical ideas and contemporary research practices have come together is related to discussions about the epistemological and ontological underpinnings of qualitative and quantitative research methods. This discussion can be understood through different positions labeled as positivist or naturalist on the one hand and phenomenological, hermeneutical, interpretivist or discourse and narrative analyst on the other. This course aims at communicating the relevance of philosophical ideas in conducting research today. Through a selection of readings it provides a historical overview of the development of philosophical thought which is indispensible for the understanding of the contemporary world and its fundamental theoretical bases.

Equivalent Course(s) None

1.2.6 Master of Science in Management Sciences (MSMS)

Course Name	Qualitative Research Methods	**Credit Hours**	**3** (3,0)
Course Code	MS 5131	**Prerequisite(s)**	None

Course Description	This course is designed to provide master's students with a strong introduction to the philosophical foundations, approaches and methods associated with qualitative research; and to acquaint them with setting, design, issues, and debates related to qualitative research. This course will enhance students' capacities to understand and evaluate qualitative research in business and related fields. The focus of this course is to introduce the field of qualitative research and prepare students in the skills, techniques, and knowledge necessary to undertake independent research using qualitative research methodology.
Equivalent Course(s)	None

1.2.7 Doctor of Philosophy in Management Sciences (PhD MS)

Students enrolled in Doctor of Philosophy in Management Sciences (PhD MS) program are required to complete 54 credit hours within seven (7) years. Following is the breakup of the 54 Credit Hours courses.

- *4 Compulsory Courses (12 Credit Hours)*
- *2 Elective[13] Course (6 Credit Hours)*
- *2 Independent Research Studies (6 Credit Hours)*
- *1 Dissertation (30 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
MS 6106	Advanced Research Methods and Techniques	86
MS 6216	Advanced Quantitative Tools for Research	86
MS 6217	Advanced Research Philosophy	87
MS 6xxx	Elective-I	219
	Spring Semester	
MS 6xxx	Elective-II	219
MS 6117	Advanced Qualitative Research Methods	87
MS 6119	Independent Research Study-I	-
MS 6219	Independent Research Study-II	-
	Second Year	
	Fall Semester	
MS 6xxx	Dissertation (Proposal)	-
	Spring Semester	
MS 6xxx	Dissertation	-
	Third Year	
	Fall Semester	
MS 6xxx	Dissertation	-
	Spring Semester	
MS 6xxx	Dissertation	-

All courses may not be offered every year. Alternate courses may be substituted as and when required

13 List of Electives is given in Appendix B.

1.2.7 Doctor of Philosophy in Management Sciences (PhD MS)

Course Name	Advanced Research Methods and Techniques	**Credit Hours**	**3** (3,0)
Course Code	MS 6106	**Prerequisite(s)**	MS 5137

Course Description	The course of ARMT covers advanced research methods and techniques that include role of philosophy in research, research paradigms, role of theory in research, advanced research strategies and approaches, gap identification in literature, research tools development process and techniques, and inference through qualitative, quantitative, and mixed data analysis. The emphasis of the course is on quality criteria in research through rigorous analysis and in depth understanding of the phenomenon.
Equivalent Course(s)	None

Course Name	Advanced Quantitative Tools for Research	**Credit Hours**	**3** (3,0)
Course Code	MS 6216	**Prerequisite(s)**	MS 5204

Course Description	This course is designed for PhD students and requires an understanding of quantitative tools for research. It covers advanced topics in quantitative research like: multivariate model building, multiple regression analysis, multiple discriminant analysis, MANOVA, ANCOVA, canonical correlations, factor analysis, cluster analysis, conjoint analysis, structured equation modelling. The emphasis of course is using advanced techniques for research with concept building and software application.
Equivalent Course(s)	None

1.2.7 Doctor of Philosophy in Management Sciences (PhD MS)

Course Name	Advanced Research Philosophy	**Credit Hours**	**3** (3,0)
Course Code	MS 6217	**Prerequisite**	MS 5416

Course Description

This course stems from the belief that an examination of the intimate relationship between philosophy and research is an important and fruitful one. One area where philosophical ideas and contemporary research practices have come together is related to discussions about the epistemological and ontological underpinnings of qualitative and quantitative research methods. This discussion can be understood through different positions labeled as positivist or naturalist on the one hand and phenomenological, hermeneutical, interpretivist or discourse and narrative analyst on the other hand. The former position attempts to apply the principles of the natural sciences to the study of people and the society we inhabit. While the latter rejects such a perspective because human beings are primarily agents (autonomous beings) and are capable to engage in self-reflection and their peculiar surroundings. Moreover, every research framework is ineluctably embedded in some kind of conception of the world and to knowing that world. Research tools or procedures like questionnaire, attitude scale, random sample, and so on are essentially premised upon different views and orientations towards the world that are antecedently conditioned and always prior to these instruments to be used in the first place. Research methods are not part of some single and absolute algorithm of 'how to conduct research' but are the outcome of human pursuits of knowledge, thereby rooted in philosophical paradigms and various research traditions. Research methods are primordially based upon metaphysical and epistemological assumptions which must be understood and scrutinized in executing research plans. This course presents philosophical ideas relevant to the conduct and practices of research methods which are useful not only as 'a rite de passage' for research students but as a way of developing and sharpening their understanding about research. Thus, philosophy plays a pivotal role in developing our thinking of the overall context of our research projects and our findings. It can also help us to avoid fallacious reasoning and illegitimate inferences from data.

Equivalent Course(s) None

Course Name	Advanced Qualitative Research Methods	**Credit Hours**	**3** (3,0)
Course Code	MS 6117	**Prerequisite(s)**	MS 5131

Course Description

This course will familiarize students with principal research methods used in qualitative research in Business Management, Social Science and Human Behavior. From reviewing the most common stances on qualitative research, and knowledge claims made from qualitative research methods, students will be engaged into diverse traditions of qualitative inquiry viz. narrative research, ethnography, phenomenology, grounded theory, case study, and action research. A comparison of philosophy, theory, concepts, inquiry modes, settings, analyses, and reporting styles will be revealed through small cases and research articles.

Equivalent Course(s) None

Department of Computer Science

2.1 Bachelor of Science

2.1.1 Bachelor of Science in Computer Science (BSCS)

The Bachelor of Science in Computer Science (BSCS) program is offered through a well-trained foreign qualified faculty. It consists of 40 courses (five courses per semester) with a total of 130 credit hours. BS (CS) Program is accredited by NCEAC. The maximum time to complete the degree is 7 years. The breakup of 40 courses is as follow:

- *29 Compulsory Course (97 Credit Hours)*
- *2 University Electives[14] (6 Credit Hours)*
- *7 CS Electives[15] (21 Credit Hours)*
- *2 Final Year Project (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
CSC 1101	Calculus and Analytical Geometry	92
CSC 2101	Communication & Presentation Skills	92
CSC 1103	Fundamentals of Programming	92
CSC 1104	Introduction to Computing	93
CSC 1105	Islamiat & Pakistan Studies/Humanities	93
	Total Credit Hrs. 16	
	Spring Semester	
CSC 1201	Discrete Mathematical Structures	93
CSC 1202	Multivariate Calculus	94
CSC 1203	Object Oriented Programming	94
CSC 1204	Physics	94
CSC 1102	English Composition and Comprehension	94
	Total Credit Hrs. 16	
	Second Year	
	Fall Semester	
CSC 1205	Technical and Business Writing	95
CSC 2102	Data Structures and Algorithms	95
CSC 2103	Digital Logic Design	95
CSC 2104	Linear Algebra & Differential Equations	96
CSC 2105	Statistics & Probability	96
	Total Credit Hrs. 18	
	Spring Semester	
CSC 2201	Computer Organization and Assembly Language	96
CSC 2202	Data Communications and Computer Networks	97
CSC 2203	Database Systems	97
CSC 2204	Finite Automata Theory and Formal Languages	97
CSC 2205	Operating Systems	97
	Total Credit Hrs. 18	

14 List of University Electives is given in Appendix B.
15 List of CS Electives is given in Appendix B.

2.1.1 Bachelor of Science in Computer Science (BSCS)

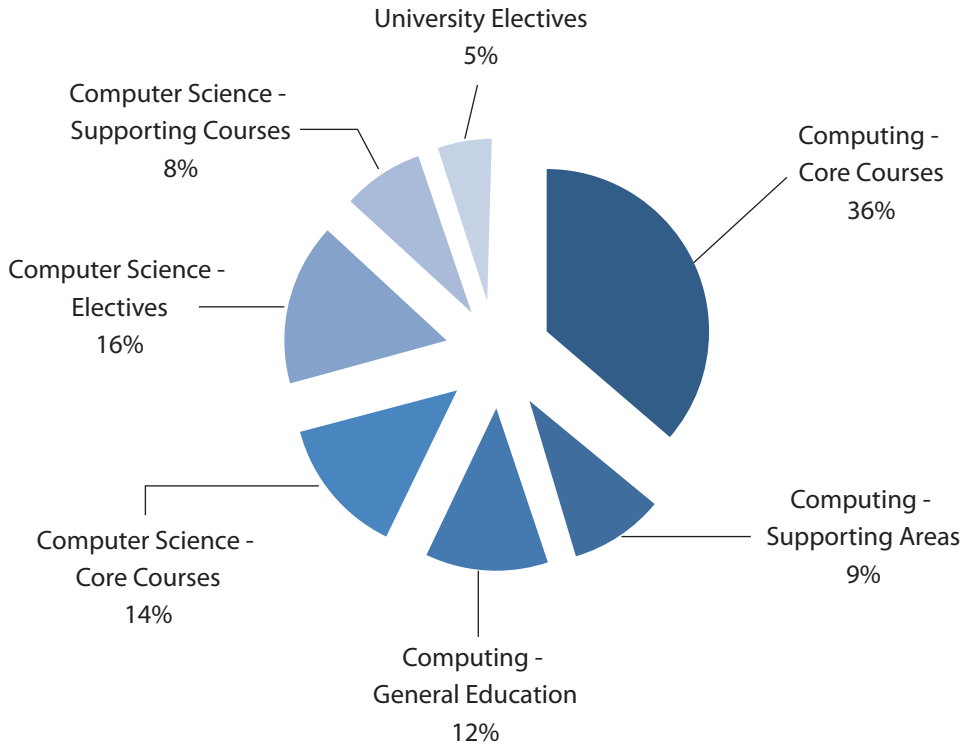
Course Code	Course Title	Page #
	Third Year	
	Fall Semester	
CSC 3101	Computer Architecture	98
CSC 3102	Human Computer Interaction	98
CSC 3103	Introduction to Software Development	98
CSC 3104	Software Engineering-I	99
CSC 4xxx	University Elective-1	220
	Total Credit Hrs. 17	
	Spring Semester	
CSC 3201	Compiler Construction	99
CSC 3202	Design & Analysis of Algorithms	99
CSC 3203	Numerical Computing	99
CSC 4xxx	CS Elective-I	220
CSC 4xxx	CS Elective-II	220
	Total Credit Hrs. 15	
	Fourth Year	
	Fall Semester	
CSC 4101	Artificial Intelligence	100
CSC 4102	Professional Practices	100
CSC 4105	Final Year Project-I	100
CSC 4xxx	CS Elective-III	220
CSC 4xxx	CS Elective-IV	220
	Total Credit Hrs. 15	
	Spring Semester	
CSC 4205	Final Year Project-II	101
CSC 4xxx	CS Elective-V	220
CSC 4xxx	CS Elective-VI	220
CSC 4xxx	CS Elective-VII	220
CSC 4xxx	University Elective-II	220
	Total Credit Hrs. 15	

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

2.1.1 Bachelor of Science in Computer Science (BSCS)

DISTRIBUTION OF CREDIT HOURS

Course Group		Cr. Hrs.	%
Computing	Core Courses	47	36%
	Supporting Areas	12	9%
	General Education	15	12%
Computer Science	Core Courses	18	14%
	Electives	21	16%
	Supporting Courses	11	8%
University Electives		6	5%
	Total	**130**	**100%**



2.1.1 Bachelor of Science in Computer Science (BSCS)

Course Name	Calculus and Analytical Geometry	**Credit Hours**	**3** (3,0)
Course Code	CSC 1101	**Prerequisite(s)**	None

Course Description

The course covers an introduction to calculus, derivatives, applications of the derivative, maximum and minimum problems, minimum maximum graphs, ellipses, parabolas, and hyperbolas, the mean value theorem and L'Hopital's rule, the chain rule, integrals, integrals of exponentials and logarithms, techniques of integration, applications of the Integra, areas and volumes length of a plane curve, area of a surface of revolution, masses and moments, force, work, and energy, polar coordinates and complex numbers, infinite series, vectors and matrices, motion along a curve, partial derivatives, multiple integrals, and vector calculus.

Equivalent Course(s) BA 2404, ME 1104

Course Name	Communication and Presentation Skills	**Credit Hours**	**3** (3,0)
Course Code	CSC 2101	**Prerequisite(s)**	None

Course Description

The course is aimed at improving English language communication and presentation skills of students. With a multidimensional approach, the course enables the students to practice the use of English in everyday situations, building upon all four skills: listening, speaking, reading and writing. It prepares them to participate in seminars and discussions and make effective presentations, with an awareness of the audience and effective use of verbal and non-verbal communication. The course addresses the basic English language issues faced by the learners, while also aiming to foster in them, critical skills to develop a concise and clear argument, respond to others' comments and negotiate their own point of view persuasively. The course uses an interactive, participatory methodology, to engage learners' interest and boost their confidence to use English in everyday communication in formal and informal contexts.

Equivalent Course(s) ME 1101, MD 1122, SS 1116, BIO 1111

Course Name	Fundamentals of Programming	**Credit Hours**	**4** (3,1)
Course Code	CSC 1103	**Prerequisite(s)**	None

Course Description

The course covers an overview of computers and programming, computer language for example C language, basics of structured and modular programming, basic algorithms and problem solving, development of basic algorithms, analyzing problem, designing solution, testing designed solution. In addition, it will also cover fundamental programming constructs, translation of algorithms to programs, data types, control structures, functions, arrays, records, files, and testing programs.

Equivalent Course(s) None

2.1.1 Bachelor of Science in Computer Science (BSCS)

Course Name	Introduction to Computing	**Credit Hours**	**3** (2,1)
Course Code	CSC 1104	**Prerequisite(s)**	None

Course Description

This course introduces fundamental computer concepts, including basic functions and operations of the computer. Course will cover topics that include identification of hardware components, computer software and architecture, operating system and network technologies, basic computer operations, internet and the world wide web, databases and information systems.

Equivalent Course(s) BA 1108, BA 1103

Course Name	Islamiat and Pakistan Studies/Humanities	**Credit Hours**	**3** (3,0)
Course Code	CSC 1105	**Prerequisite(s)**	None

Course Description

This course covers the fundamentals of Islam (Aqaid, Ibadat, Islamic Dawah etc.); ethical values of Islam; seerah of the Holy Prophet (PBUH); Islamic civilization and its effects on humanity, study of other prominent world religions and ethical systems in comparison with Islamic viewpoint; Multicultural societies, historical background of Pakistan: Muslim society in Indo-Pakistan, the movement led by the societies, the downfall of Islamic society, the establishment of British Raj- causes and consequences. It also covers political evolution of Muslims in the twentieth century: Sir Syed Ahmed Khan; Muslim League; Nehru; Allama Iqbal: independence movement; Lahore Resolution; Pakistan culture and society, constitutional and administrative issues, Pakistan and its geo-political dimension, Pakistan and international affairs, Pakistan and the challenges ahead.

Equivalent Course(s) BA 1106, MD 2402, SS 1109, BIO 2303

Course Name	Discrete Mathematical Structures	**Credit Hours**	**3** (3,0)
Course Code	CSC 1201	**Prerequisite(s)**	None

Course Description

This course introduces the foundations of discrete mathematics as they apply to Computer Science, focusing on providing a solid theoretical foundation for further work. Further, this course aims to develop understanding and appreciation of the finite nature inherent in most Computer Science problems and structures through study of combinatorial reasoning, abstract algebra, iterative procedures, predicate calculus, tree and graph structures.

Equivalent Course(s) None

Course Name	Multivariate Calculus	**Credit Hours**	**3** (3,0)
Course Code	CSC 1202	**Prerequisite(s)**	CSC 1101

Course Description

The course aims to make students able to handle vectors fluently in solving problems involving the geometry of line, curves, planes and surfaces in space. They should be able to differentiate scalar function of vectors and integrate functions of vectors. Students are expected to calculate extreme values using Lagrange multipliers and solve double and triple integration.

Equivalent Course(s) None

Course Name	Object Oriented Programming	**Credit Hours**	**3** (2,1)
Course Code	CSC 1203	**Prerequisite(s)**	CSC 1103

Course Description

The course introduces the concepts of object oriented programming and environment and the basic concepts of classes, objects and applying programming techniques that features, abstraction, polymorphism, encapsulation, modularity and inheritance.

Equivalent Course(s) None

Course Name	Physics	**Credit Hours**	**4** (3,1)
Course Code	CSC 1204	**Prerequisite(s)**	None

Course Description

The general objective of the course is to acquire an understanding of physical processes which govern the nature and concepts of Electronic devices. This helps in developing strong concepts of Physics and basic electronics which is very essential for all electronic and communication devices.

Equivalent Course(s) None

Course Name	English Composition and Comprehension	**Credit Hours**	**3** (3,0)
Course Code	CSC 1102	**Prerequisite(s)**	CSC 2101

Course Description

The course is designed to improve academic English language and study skills of students. The course follows a multidimensional approach based on the four language skills with a specific focus on reading and writing skills that are required in research-based study at university level. The course includes listening and note taking skills, library and internet use for locating and evaluating research articles. In addition, the course seeks to enable the students to of speed read, skim, scan and infer from written text. The course specifically focuses on enabling the students to experiment with complex grammatical forms, sentence structures and logical paragraph development, to present coherent, cohesive and effective arguments clearly in research-based writing according to the requirements of their specific discipline.

Equivalent Course(s) ME 1205, MD 1222, SS 2316, BIO 1211

Course Name	Technical and Business Writing	**Credit Hours**	**3** (3,0)
Course Code	CSC 1205	**Prerequisite(s)**	CSC 1102

Course Description

This course focuses on the use of English in professional contexts. The course aims to develop interpersonal communication skills in a dynamic, digitalized and globally connected business world. This interactive course will create an awareness in the students about the basics of communication in formal contexts, allows them to analyze the mechanics of technical business writing with the use of specific registers, and experiment with different types of letters, memos, reports, proposals, presentations, and manuals to communicate complex information with clarity, conciseness, and force to meet the basic business communication needs of working professionals.

Equivalent Course(s) BIO 2411

Course Name	Data Structures and Algorithms	**Credit Hours**	**4** (3,1)
Course Code	CSC 2102	**Prerequisite(s)**	None

Course Description

This course covers the concept of specification, design, implementation, and use of the basic data types; important programming techniques, data abstraction techniques, object oriented programming and sorting; data types: sets, bags, sequential lists, order lists, stacks, queues, and trees; types of searching such as linear and binary search, and different techniques of sorting; linear data structures and implementation each with C++/Java and non-linear data structures with implementation and the complexity of an algorithm of search and sorting.

Equivalent Course(s) None

Course Name	Digital Logic Design	**Credit Hours**	**4** (3,1)
Course Code	CSC 2103	**Prerequisite(s)**	None

Course Description

The course teaches theoretical concepts, well supported through practical work, systematic synthesis of the applied techniques for the design of practical digital systems. Topics include; introduction to various numbering systems, various design techniques, minimization techniques for designing efficient combinational and sequential logic circuits, basic digital circuit building blocks, such as, decoders, multiplexers, shift registers, flip flops, etc. Modern methods of designing digital circuits; designing of autonomous and input-controlled counters & shift-registers and concept of finite state machine are also introduced.

Equivalent Course(s) None

Course Name	Linear Algebra and Differential Equations	**Credit Hours**	**4** (4,0)
Course Code	CSC 2104	**Prerequisite(s)**	None

Course Description

Linear Algebra introduces types of matrices: invertible matrices, echelon matrices, algebra of square matrices, determinants, application of linear equations, solution of elimination, linear equation and representation by matrices and linear transformation. Differential equation and their classification, formation of differential equations, separable equations, integration function and reduction of order are also included.

Equivalent Course(s) ME 1202

Course Name	Statistics and Probability	**Credit Hours**	**3** (3,0)
Course Code	CSC 2105	**Prerequisite(s)**	CSC 1101

Course Description

This course covers basic probability models, sample space, outcomes, and events; random variable; discrete distribution functions and axioms of probability; infinite sample spaces with discrete probabilities, combinatory, counting problems, permutations, tree diagrams; combinations, binomial coefficients, binomial theorem, and Pascal's triangle; Bernoulli trials, Bernoulli probabilities, Random variables; discrete and continuous probability distributions, binomial distributions, normal (Gaussian) distribution; chi-squared distribution, uniform continuous distributions; geometric distribution; Poisson distribution; exponential and gamma distributions, statistical estimation and testing, confidence intervals, linear regression and queuing theory.

Equivalent Course(s) BA 3605, BA 5405

Course Name	Computer Organization & Assembly Language	**Credit Hours**	**3** (3,0)
Course Code	CSC 2201	**Prerequisite(s)**	CSC 2103

Course Description

This course covers: Microprocessor Bus Structure; Addressing, Data and Control, Memory Organization and Structure (Segmented and Linear Models), Introduction to Registers and Flags, Data Movement, Arithmetic and Logic, Programmer Control, Subroutines, Stack and its operation, Peripheral Control Interrupts, Interfacing with high level languages, and Real-time application. It also covers; Objectives and Perspectives of Assembly Language, Addressing Modes, Introduction to the Assembler and Debugger, Manipulate and translate machine and assembly code, Describe actions inside the processing chip, Discuss operations performed by an instruction set, Write a fully documented program, and Using an assembler of choice.

Equivalent Course(s) None

2.1.1 Bachelor of Science in Computer Science (BSCS)

Course Name	Data Communications and Computer Networks	**Credit Hours**	**4** (3,1)
Course Code	CSC 2202	**Prerequisite(s)**	None

Course Description

This course gives a basic understanding of computer network and data communication. Students are given awareness about OSI Reference Model, Guided and Un-Guided Transmission, Encoding Schemes, Modulation Schemes, Multiplexing schemes, Amplitude Shift Keying, Frequency Shift Keying, Phase shift keying, Internet Architecture, Routing Protocols, Routed Protocols, IPv4 and IPv6 Sub-netting, CIDR, VLSM, and Application layer protocols.

Equivalent Course(s) None

Course Name	Database Systems	**Credit Hours**	**4** (3,1)
Course Code	CSC 2203	**Prerequisite(s)**	None

Course Description

This course covers: Basic database concepts; Entity Relationship modelling, Relational data model and algebra, Structured Query language; RDBMS; Database design, functional dependencies and normal forms; Transaction processing and optimization concepts; concurrency control and recovery techniques; and Database security and authorization. It also covers Small Group Project implementing a database; Physical database design; Storage and file structure indexed files, b-trees; files with dense index, files with variable length records, database efficiency and tuning.

Equivalent Course(s) None

Course Name	Finite Automata Theory and Formal Languages	**Credit Hours**	**3** (3,0)
Course Code	CSC 2204	**Prerequisite(s)**	CSC 1201

Course Description

This course introduces the theory of computing including Mathematical Preliminaries and Notation, basic concepts of languages grammars and automata and some applications the course covers finite automata; transition graphs regular languages and regular grammars; content free language simplification, normal form and pushdown in detail. Also, it covers Context-free languages ambiguity in Grammars and Languages, Context-Free Grammars and Programming Languages.

Equivalent Course(s) None

Course Name	Operating Systems	**Credit Hours**	**4** (3,1)
Course Code	CSC 2205	**Prerequisite(s)**	None

Course Description

This course involves study of concepts and components of general purpose operating systems. These include the study of processes and process synchronization, multithreaded applications, deadlocks, memory management, and file systems. UNIX and Windows NT are general purpose operating systems used as examples when studying these concepts. Laboratory assignments of process/thread synchronization, process communication, and file systems are given.

Equivalent Course(s) None

2.1.1 Bachelor of Science in Computer Science (BSCS)

Course Name	Computer Architecture	**Credit Hours**	**3** (3,0)
Course Code	CSC 3101	**Prerequisite(s)**	CSC 2103

Course Description

This course is designed to know about different computer architectures based on Flynn's clarification. How Architecture and Organization of any system are related. Get a deeper understanding of how computers work, how instruction set is designed, how various blocks of a computer executes instructions, working knowledge of various subsystems and the factors that affect their performance, such as pipelines, cache memories, clock-synchronization, etc. To analyze the performance of systems and quantify the performance measurements, such as MIPS, MFLOPS, Throughputs, etc. high performance processors, such as RISC.

Equivalent Course(s) None

Course Name	Human Computer Interaction	**Credit Hours**	**3** (3,0)
Course Code	CSC 3102	**Prerequisite(s)**	None

Course Description

This course is in four parts; foundations; that include human, computer interaction, paradigms; design process; and interaction design. Also, HCI in software process, rules and evaluation techniques for design, models and theories including cognitive models and ubiquitous computing and augmented realities hypertext, multimedia, and the world wide.

Equivalent Course(s) None

Course Name	Introduction to Software Development	**Credit Hours**	**4** (3,1)
Course Code	CSC 3103	**Prerequisite(s)**	CSC 1203

Course Description

This hands-on course is designed for those with no previous programming experience and is also appropriate for experienced developers who want to learn modern Object-Oriented (OO) languages such as Java and C#. By using an "objects first" approach, students receive an intensive introduction to object-oriented programming. Topics include classes and objects and their relationship, primitive data types, constructors, methods, repetition and selection, collections, abstraction and modularization. Upon successful completion, participants will have a basic understanding of programming concepts and objects, and be prepared to move on to higher level OO programming language courses.

Equivalent Course(s) None

2.1.1 Bachelor of Science in Computer Science (BSCS)

Course Name	Software Engineering-I	**Credit Hours**	**4** (3,1)
Course Code	CSC 3104	**Prerequisite(s)**	None

Course Description

This course introduces different stages of the software life cycle, compares development models such as waterfall, prototyping, incremental/iterative and agile methods. Moreover, it also covers requirements analysis, architecture and design areas.

Equivalent Course(s) None

Course Name	Compiler Construction	**Credit Hours**	**3** (3,0)
Course Code	CSC 3201	**Prerequisite(s)**	CSC 2204

Course Description

This course is design to develop the ability to design and implement compilers for diverse purposes. Also to Equip students with concepts and techniques used to develop Compilers, since it is important to know how a software generator works.

Equivalent Course(s) None

Course Name	Design & Analysis of Algorithms	**Credit Hours**	**3** (3,0)
Course Code	CSC 3202	**Prerequisite(s)**	CSC 2102

Course Description

This course covers: Introduction; Asymptotic notations; Recursion and recurrence relations; Divide-and-conquer approach; Sorting; Search trees; Heaps; Hashing; Greedy approach; Dynamic programming; Graph algorithms; Shortest paths; Network flow; Disjoint Sets; Polynomial and matrix calculations; String matching; NP complete problems; and Approximation algorithms.

Equivalent Course(s) None

Course Name	Numerical Computing	**Credit Hours**	**3** (3,0)
Course Code	CSC 3203	**Prerequisite(s)**	CSC 1101

Course Description

The concepts of efficiency, reliability and accuracy of a method; Minimizing computational errors; Theory of Differences; Difference Operators, Difference Tables, Forward Differences, Backward Differences and Central Differences; Mathematical Preliminaries; Solution of Equations in one variable; Interpolation and Polynomial Approximation; Numerical Differentiation and Numerical Integration; Initial Value Problems for Ordinary Differential Equations; Direct Methods for Solving Linear Systems; Iterative Techniques in Matrix Algebra; and Solution of non-linear equations are covered in this course.

Equivalent Course(s) None

2.1.1 Bachelor of Science in Computer Science (BSCS)

Course Name	Artificial Intelligence	**Credit Hours**	**3** (3,0)
Course Code	CSC 4101	**Prerequisite(s)**	CSC 2102, CSC 2204

Course Description

This course covers Artificial Intelligence: Introduction, Intelligent Agents. Problem-solving: Solving Problems by Searching, Informed Search and Exploration, Constraint Satisfaction Problems, Adversarial Search. Knowledge and reasoning: Logical Agents, First-Order Logic, Inference in First-Order Logic, Knowledge Representation. Planning and Acting in the Real World. Uncertain knowledge and reasoning: Uncertainty, Probabilistic Reasoning, Probabilistic Reasoning over Time, Making Simple Decisions, Making Complex Decisions. Learning: Learning from Observations, Knowledge in Learning, Statistical Learning Methods, Reinforcement Learning. Communicating, perceiving, and acting: Communication, Probabilistic Language Processing, Perception and Robotics. Introduction to LISP/PROLOG and Expert Systems (ES) and Applications.

Equivalent Course(s) None

Course Name	Professional Practices	**Credit Hours**	**3** (3,0)
Course Code	CSC 4102	**Prerequisite(s)**	None

Course Description

This course covers Historical, social, and economic context of Computing (software engineering, Computer Science, and Information Technology); Definitions of Computing (software engineering, Computer Science, and Information Technology) subject areas and professional activities; professional societies; professional ethics; professional competency and life-long learning; uses, misuses, and risks of software; information security and privacy; business practices and the economics of software; intellectual property and software law (cyber law); social responsibilities, software related contracts, and software house organization.

Equivalent Course(s) None

Course Name	Final Year Project-I	**Credit Hours**	**3** (0,3)
Course Code	CSC 4105	**Prerequisite(s)**	CSC 3103

Course Description

This is the project that final year students carry out as part of their degree requirement. Part-I generally carries to build concept and prototype model. The objective of the course is to implement and demonstrate the software engineering processes and principles which include; project analysis, design, implementation and evaluation of a large-scale problem involving computer and computational systems. The project is supervised by a faculty member, under whose guidance each project team will research the solution. The mid evaluation is performed by a team of experts at the conclusion of part-1.

Equivalent Course(s) None

Course Name	Final Year Project-II	**Credit Hours**	**3** (0,3)
Course Code	CSC 4205	**Prerequisite(s)**	CSC 4105

Course Description	This is in continuation to FYP-I taken in the previous semester. In this phase, students build the actual project after duly completing the prototype in part-I. The complete project is evaluated by a team of experts at the conclusion of part-II.
Equivalent Course(s)	None

2.2 Master of Science and PhD

2.2.1 Master of Science in Computer Science (MSCS)

SZABIST offers Master of Science in Computer Science (MSCS) degree in three domains: Core Computer Science and two specialization tracks, i.e., Software Engineering (SE) and Networks and Security (N&S). Students have to complete 4 focused courses in any specific domain. The program is of 2-year duration and is offered in the evening. It requires 33 credit hours to complete the degree with 9 courses (27 credit hours) and Thesis/Research Work (6 credit hours).

The following is the break-up of the minimum credit hours requirements to be fulfilled by the students enrolled in this program:

- *5 Compulsory/Core Courses (15 Credit Hours)*
- *4 Electives*[16] *(12 Credit Hours)*
- *1 Thesis (6 Credit Hours) or 2 Course (3 Credit Hours each)*

Course Code	Course Title	Page #
MSCS	**First Year**	
	First Semester	
CSC 5105	Research Methodology	103
CSC 5101	Advanced Algorithms Analysis	103
CSC 5102	Theory of Computation	104
	Second Semester	
CSC 5201	Advanced Operating Systems	104
CSC 5202	Advanced Computer Architecture	104
CSC 5xxx	Elective I (Independent Study-Topic related to CS/SE/N&S Stream-I or II)	221
	Second Year	
	Third Semester	
CSC 5xxx	Thesis or Course work (from CS/SE/N&S Stream –II)	221
CSC 5xxx	Elective-II (from CS/SE/N&S-Stream-I)	221
CSC 5xxx	Elective-III (from CS/SE/N&S-Stream-I)	221
	Fourth Semester	
CSC 5xxx	Thesis or Course Work (from CS/SE/N&S-Stream-II)	221
CSC 5xxx	Elective-IV (from CS/SE/N&S-Stream-I)	221

All courses may not be offered every year. Alternate courses may be substituted as and when required.

16 List of Electives is given in Appendix B.

2.2.1 Master of Science in Computer Sciences (MSCS)

Course Name	Research Methodology	**Credit Hours**	**3** (3,0)
Course Code	CSC 5105	**Prerequisite(s)**	None

Course Description

This course covers international ethical, professional and legal issues in computing research including concept of research, definitions, quantitative and qualitative approaches, proposal for research, forming hypotheses, originality, critical analysis methods; also reading for research; data collection, information gathering; literature surveys and questionnaires data analysis, presentation of information, writing academic papers, content and referencing. The students have to perform meta analyses of 25-30 research papers selected in current research topics in International Journals. Topic and papers are selected with approval from the instructor. Conference papers are not allowed for review. Students have to read all such papers and prepare the analysis related to model, methods, findings and come up with what has been done related to selected area of research and research gaps if any are explicitly identified with future work.

Equivalent Course(s) None

Course Name	Advanced Algorithms Analysis	**Credit Hours**	**3** (3,0)
Course Code	CSC 5101	**Prerequisite(s)**	None

Course Description

Advanced Algorithm Analysis includes the introduction of formal techniques and the underlying mathematical theories like NP-completeness, search techniques, randomized algorithms and heuristic and approximation algorithms. Topics include: asymptotic analysis of upper and average complexity bounds using big-O, little-o, and theta notation. Fundamental algorithmic strategies (brute-force, greedy, divide-and-conquer, backtracking, branch-and-bound, pattern matching, and numerical approximations) are covered. It also covers standard graph and tree algorithms, standard complexity classes, time-space tradeoffs in algorithms, using recurrence relations to analyze recursive algorithms, non-computable functions, the halting problem, and the implications of non-computability. Algorithmic animation is used to reinforce theoretical results. Upon completion of the course, students should be able to explain the mathematical concepts used in describing the complexity of an algorithm, and select and apply algorithms appropriate to a particular situation.

Equivalent Course(s) None

2.2.1 Master of Science in Computer Sciences (MSCS)

Course Name	Theory of Computation	**Credit Hours**	**3** (3,0)
Course Code	CSC 5102	**Prerequisite(s)**	None

Course Description

This course includes set theory, sequences, tuples, functions, relations and graphs; Turing machine; language, designing variants of Turing machines, enumerators, dovetailing, Church-Turing Thesis, Hilbert's Tenth problem, decidable languages, acceptance problem for DFAs, the halting problem, reducibility, recursion theorem, logical theories, complexity theory; time complexity, non-deterministic time, Class P, Class NP, NP-completeness, space complexity, relationship between Space and Time complexity, P-SPACE-completeness, Class L, Class NL and NL-completeness.

Equivalent Course(s) None

Course Name	Advanced Operating Systems	**Credit Hours**	**3** (3,0)
Course Code	CSC 5201	**Prerequisite(s)**	None

Course Description

The course covers characterization of modern operating systems; file systems, memory management techniques, process scheduling and resource management; system models; architectural models; inter process communication; issues of security in distributed systems (partial coverage); distributed file system; concurrency control in distributed systems; problems of coordination and agreement in distributed systems; replication-advantages and requirements; fault-tolerant services and mobile and ubiquitous computing.

Equivalent Course(s) None

Course Name	Advanced Computer Architecture	**Credit Hours**	**3** (3,0)
Course Code	CSC 5202	**Prerequisite(s)**	None

Course Description

This course covers architectural and organizational attributes of computer architecture like Flynn's classifications; SISD, SIMD, MISD and MIMD systems and their working principles, shared versus distributed memory architectures, Bernstein conditions, performance measurements of computers, open architecture versus close architectures, CISC, RISC, conventional versus super-scalar (K-Issue) processors and WINTEL architecture are studied. Furthermore, cache memory, techniques to reduce cache misses, multi-level caches, cache-look-ahead processor, micro-programmed controller versus hardwired controller, CPU performance metrics, pipelining, multiprogramming and time-sharing operating systems, design of a generic processor and its architecture, designing of executable versus hardwired instructions, microcode versus macro code, concept of control word (microinstructions), parallel computing, taxonomy of parallel architectures, parallel applications, synchronization mechanisms, data level parallelism (Vector Processing, Multimedia Applications, Graphics Processing Units) are also covered in the course.

Equivalent Course(s) None

2.2 Master of Science and PhD

2.2.2 Doctor of Philosophy in Computing-PhD

Doctor of Philosophy in Computing (PhD Computing) program requires completion of a total of 48 credit hours with 4 courses, 2 Independent Studies (IS) and a dissertation. The following is the break-up of the credit hours requirements to be fulfilled by the students enrolled in this program in three (3) years.

- *4 Elective Courses[17] (12 Credit Hours)*
- *2 Independent Studies (06 Credit Hours)*
- *1 Dissertation (30 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
CSC 6101	Research Methodology[18] (Elective-I)	106
CSC 6xxx	Elective-II	222
CSC 6xxx	Elective-III	222
	Spring Semester	
CSC 6xxx	Elective-IV	222
CSC 6xxx	Independent Study-I	-
CSC 6xxx	Independent Study-II	-
	Second Year	
	Fall Semester	
CSC 6x09	Dissertation	-
	Spring Semester	
CSC 6x09	Dissertation	-
	Third Year	
	Fall Semester	
CSC 6x09	Dissertation	-
	Spring Semester	
CSC 6x09	Dissertation	-

All courses may not be offered every year. Alternate courses may be substituted as and when required.

17 List of Electives is given in Appendix B.
18 The course of Research Methodology is compulsory if not done earlier in Masters.

2.2.2 Doctor of Philosophy in Computing-PhD

Course Name	Research Methodology	**Credit Hours**	**3** (3,0)
Course Code	CSC 6101	**Prerequisite(s)**	None

Course Description

This course covers international ethical, professional and legal issues in computing research including concept of research, definitions, quantitative and qualitative approaches, proposal for research, forming hypotheses, originality, critical analysis methods; also reading for research; data collection, information gathering; literature surveys and questionnaires data analysis, presentation of information, writing academic papers, content and referencing. The students have to perform meta analyses of 25-30 research papers selected in current research topics in International Journals. Topic and papers are selected with approval from the instructor. Conference papers are not allowed for review. Students have to read all such papers and prepare the analysis related to model, methods, findings and come up with what has been done related to selected area of research and research gaps if any are explicitly identified with future work.

Equivalent Course(s) None

Department of Social Sciences

3.1 Bachelor of Science

3.1.1 Bachelor of Science in Social Sciences (BSSS)

Students enrolled in Bachelor of Science in Social Sciences (BSSS) program are required to complete a total of 144 credit hours within seven (7) years. The course break-up is as follows:

- *32 Compulsory Courses (96 Credit Hours)*
- *12 Major Courses[19] (36 Credit Hours)*
- *2 Electives[20] (6 Credit Hours)*
- *1 Research Project (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
SS 1105	Microeconomics	110
SS 1109	Islamiat/Ethics and Pakistan Studies	110
SS 1115	Community Services	110
SS 1117	Computer and Web Skills	110
SS 1116	English-I: English for General Purposes (EGP)	111
SS 1201	Introduction to Social Sciences	111
	Spring Semester	
SS 1155	Introduction to Political Science	111
SS 1205	Macroeconomics	112
SS 2306	Psychology	112
SS 2307	Sociology	112
SS 2412	International Relations	112
SS 4705	Sindh Studies	113
	Second Year	
	Fall Semester	
SS 2316	English-II: English for Academic Purposes (EAP)	113
SS 2313	Introduction to Social Psychology	113
SS 2314	Study of Anthropology	114
SS 2318	Mathematics and Statistics	114
SS 2413	Philosophy	114
SS 1xxx	Elective-I	223
	Spring Semester	
SS 2406	Gender Studies	115
SS 2411	Environmental Studies	115
SS 2414	Introduction to Organizational Psychology	115
SS 2418	Statistical Inferences	116
SS 1209	Social Policy	116
SS 1xxx	Elective-II	223

19 List of Major Courses is given in Appendix C.
20 List of Electives is given in Appendix B.

Course Code	Course Title	Page #
	Third Year	
	Fall Semester	
SS 2312	Culture, Art and Society	116
SS 3509	Language-I	116
SS 3606	Political Economy	117
SS 4xxx	Major-I	230 & 231
SS 4xxx	Major-II	230 & 231
SS 4xxx	Major-III	230 & 231
	Spring Semester	
SS 3504	Research Methods	117
SS 3605	International Law and Human Rights	117
SS 3609	Language-II	118
SS 4xxx	Major-IV	230 & 231
SS 4xxx	Major-V	230 & 231
SS 4xxx	Major-VI	230 & 231
	Fourth Year	
	Fall Semester	
SS 3503	Development Studies	118
SS 4707	Introduction to Health Psychology	118
SS 4709	Research Project-I	118
SS 4xxx	Major-VII	230 & 231
SS 4xxx	Major-VIII	230 & 231
SS 4xxx	Major-IX	230 & 231
	Spring Semester	
SS 2405	Enlightenment	119
SS 4804	Public Policy	119
SS 4809	Research Project-II	119
SS 4xxx	Major-X	230 & 231
SS 4xxx	Major-XI	230 & 231
SS 4xxx	Major-XII	230 & 231

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

Course Name	Microeconomics	**Credit Hours**	**3** (3,0)
Course Code	SS 1105	**Prerequisite(s)**	None

Course Description

Microeconomics studies how the individual parts of the economy, the households and the firms, make decisions to allocate limited resources. This course is based on a comprehensive study of the market structures, the product markets and the resource markets. It also deals with application of demand and supply, cost analysis and factors of production.

Equivalent Course(s) BA 1102, BA 5302

Course Name	Islamiat/Ethics and Pakistan Studies	**Credit Hours**	**3** (3,0)
Course Code	SS 1109	**Prerequisite(s)**	None

Course Description

This course discusses the fundamental Islamic concepts and a concise history of Pakistan. Topics include pillars of Islam, the Shariah, discourses on Fiqh, the progression of Muslim society (from the advent of Islam up to the independence of the Indian sub-continent), and post-independence events in Pakistan.

Equivalent Course(s) BA1106, CSC 1105, MD 2402, BIO 2303

Course Name	Community Services	**Credit Hours**	**3** (3,0)
Course Code	SS 1115	**Prerequisite(s)**	None

Course Description

This course is comprises of two components; (i) Introduces students to community-based environment, development and application of social policies, the scope of volunteer work in general and non-governmental organizations (NGOs) in particular, cultural and social aspects of community work, and formulating social processes and procedures. (ii) Application of concepts and perspectives learnt in first component. Furthermore, students would be required to engage in a community-based project through an NGO.

Equivalent Course(s) None

Course Name	Computer and Web Skills	**Credit Hours**	**3** (3,0)
Course Code	SS 1117	**Prerequisite(s)**	None

Course Description

This course provides understanding on computer systems and their applications. The course focuses on discussing the desktop environment, word processing, spreadsheets, graphics packages, the internet, computer programming, Microsoft Access, Microsoft Visio, html, and webpage developments.

Equivalent Course(s) BA 1103, BA 1108, CSC 1104, BIO 1104

3.1.1 Bachelor of Science in Social Sciences (BSSS)

Course Name	English-I: English for General Purposes (EGP)	**Credit Hours**	**3** (3,0)
Course Code	SS 1116	**Prerequisite(s)**	None

Course Description

The course is aimed at improving English language communication and presentation skills of students. With a multidimensional approach, the course enables the students to practice the use of English in everyday situations, building upon all four skills: listening, speaking, reading and writing. It prepares them to participate in seminars and discussions and make effective presentations, with an awareness of the audience and effective use of verbal and non-verbal communication. The course addresses the basic English language issues faced by the learners, while also aiming to foster in them, critical skills to develop a concise and clear argument, respond to others' comments and negotiate their own point of view persuasively. The course uses an interactive, participatory methodology, to engage learners' interest and boost their confidence to use English in everyday communication in formal and informal contexts.

Equivalent Course(s) ME 1101, MD 1122, CSC 2101, BIO 1111

Course Name	Introduction to Social Sciences	**Credit Hours**	**3** (3,0)
Course Code	SS 1201	**Prerequisite(s)**	None

Course Description

This course covers the fundamental concepts of social science, definition of social science, its scope and applicability and the various branches of social sciences.

Equivalent Course(s) None

Course Name	Introduction to Political Science	**Credit Hours**	**3** (3,0)
Course Code	SS 1155	**Prerequisite(s)**	None

Course Description

This course provides students introduction to major concept of political systems including system of governance, nature of political and social fabrics. Constitutions and rule of business for the success of political system will be taught to students. Different political ideologies and political systems will be part of this course.

Equivalent Course(s) None

Course Name	Macroeconomics	**Credit Hours**	**3** (3,0)
Course Code	SS 1205	**Prerequisite(s)**	SS 1105

Course Description

This course introduces students to key economic indicators, role of government in an economy, measurement of gross domestic product, components of aggregate demand, consumption function and Keynesian multiplier, investment function, government intervention through monetary and fiscal policies, impact of government intervention on economic activity, inflation and unemployment, aggregate supply and demand, balance of payments and trade, public finance, growth and development.

Equivalent Course(s) BA 5402, BA 1202

Course Name	Psychology	**Credit Hours**	**3** (3,0)
Course Code	SS 2306	**Prerequisite(s)**	None

Course Description

This course covers themes such as introduction to psychology, methods of psychology, biological basis of behavior, sensation, perception, attention, memory, emotions, learning, thinking and individual differences.

Equivalent Course(s) BA 2312, BIO 2306

Course Name	Sociology	**Credit Hours**	**3** (3,0)
Course Code	SS 2307	**Prerequisite(s)**	None

Course Description

The course covers an overview of sociology. Topics include introduction to sociology, basic concepts of sociology, social groups, culture, socialization and personality, social control and collective behavior.

Equivalent Course(s) BA 2307

Course Name	International Relations	**Credit Hours**	**3** (3,0)
Course Code	SS 2412	**Prerequisite(s)**	None

Course Description

The course introduces students to key issues, questions, and theories about international relations in historical context. Course covers world politics since the First World War, and the lessons learnt by the academic, political, and military elites in the context of international relations since that time. The themes include power politics, liberal internationalism, statecraft, diplomacy, international political economy, international law, international organizations, foreign policy making and policy analysis, security and defense, hegemony and empire, globalization and civil society, and the future of the state.

Equivalent Course(s) None

Course Name	Sindh Studies	**Credit Hours**	**3** (3,0)
Course Code	SS 4705	**Prerequisite(s)**	None

Course Description

In this course students explore the civilizations of the Indus Valley from a geographic, historical, anthropological, and archaeological perspective. They study modern Sindh from the viewpoint of several disciplines, as for example, culture, literature, ethnomusicology etc. The course gives students the foundation to understand Sindh in interdisciplinary paradigms and prepares them for further aspects of area studies in Sindh. One underlying aim of Sindh Studies is to encourage students to think critically about societal development and interethnic harmony in Sindh.

Equivalent Course(s) None

Course Name	English-II: English for Academic Purposes (EAP)	**Credit Hours**	**3** (3,0)
Course Code	SS 2316	**Prerequisite(s)**	SS 1116

Course Description

The course is designed to improve academic English language and study skills of students. The course follows a multidimensional approach based on the four language skills with a specific focus on reading and writing skills that are required in research-based study at university level. The course includes listening and note taking skills, library and internet use for locating and evaluating research articles. In addition, the course seeks to enable the students to of speed read, skim, scan and infer from written text. The course specifically focuses on enabling the students to experiment with complex grammatical forms, sentence structures and logical paragraph development, to present coherent, cohesive and effective arguments clearly in research-based writing according to the requirements of their specific discipline.

Equivalent Course(s) MD 1222, ME 1205, CSC 1102, BIO 1211

Course Name	Introduction to Social Psychology	**Credit Hours**	**3** (3,0)
Course Code	SS 2313	**Prerequisite(s)**	SS 2306

Course Description

The course provides an understanding on how human behavior, feelings and thoughts are affected by social factors of environment and vice versa. Topics include group behavior, social perception, nonverbal behaviors, self-concept, cognitive dissonance, attitudes, conformity, aggression and prejudices.

Equivalent Course(s) None

Course Name	Study of Anthropology	**Credit Hours**	**3** (3,0)
Course Code	SS 2314	**Prerequisite(s)**	None

Course Description

This course introduces the discipline of Anthropology and its four major fields. It shall be discussed what is the Anthropological understanding of human associations and groups (families, marriages, ethnic and racial groups), and of systems humans have evolved to order their social lives (political, economic systems).

Equivalent Course(s)

None

Course Name	Mathematics and Statistics	**Credit Hours**	**3** (3,0)
Course Code	SS 2318	**Prerequisite(s)**	None

Course Description

This course introduces basic statistical concepts and techniques. Topics include; sampling and experimentation, descriptive statistics, probability, binomial and normal distributions, estimation, single sample and two sample hypothesis tests for means and proportions. Mathematical methods consists of; matrices, system of linear equations, differentiation and optimization, linear programming, and simplex method. Additional topics cover descriptive methods in regression and correlation, or contingency table analysis.

Equivalent Course(s)

BA 5305, BA 2305

Course Name	Philosophy	**Credit Hours**	**3** (3,0)
Course Code	SS 2413	**Prerequisite(s)**	None

Course Description

This course is both an introduction to philosophy and to careful thought, analysis, and argumentation. The course focuses on a general introduction to philosophy, Greek philosophy, medieval era, development of Muslims, Al-Farabi, Al Ghazali, Ibn-e-Rushd, and mystical tradition in Muslim thought, Renaissance, the Enlightenment (Rousseau, Voltaire), German Idealism, modern social philosophers, and contemporary social philosophers.

Equivalent Course(s)

None

Course Name	Gender Studies	**Credit Hours**	**3** (3,0)
Course Code	SS 2406	**Prerequisite(s)**	None

Course Description

This course covers basic concepts, approaches and debates in gender studies. The course introduces gender terms and concepts, the concept of gender division of labour, gender mainstreaming, the effects of development process on women and men and various approaches to gender and development, gender equality and the Millennium Development Goals, definition and explanation of feminism and feminist theory, history of the feminist movements around the world, conceptual development of Muslim feminism and its social, political, economic and legal impact on Muslim countries.

Equivalent Course(s) None

Course Name	Environmental Studies	**Credit Hours**	**3** (3,0)
Course Code	SS 2411	**Prerequisite(s)**	None

Course Description

This introductory course provides an overview of environmental issues, policy and politics, impact of human activities on natural environment and basic economic and political factors generating environmental crisis. The course covers introduction to environmental issues, foundations of environmental policy and politics, international environmental law and policy, natural resources policy practicum and environmental diplomacy practicum, water resource management, land planning and impact of urban land use planning and transportation on environment, strategies for land conservation, and understanding environmental campaigns, strategies and tactics.

Equivalent Course(s) None

Course Name	Introduction to Organizational Psychology	**Credit Hours**	**3** (3,0)
Course Code	SS 2414	**Prerequisite(s)**	SS 2306

Course Description

It is the study of organization, workplace and its employees and how work can be done to enhance the performance and satisfaction of its people. The course discusses hiring and management, job attitudes, leadership, workplace ethics, team composition, job designs, organizational development and human resources.

Equivalent Course(s) BA 3504

Course Name	Statistical Inferences	**Credit Hours**	**3** (3,0)
Course Code	SS 2418	**Prerequisite(s)**	SS 2318

Course Description

This course covers; sets and probability, concept of random variable, possibilities, theory, estimation theory, testing hypothesis, one sample tests, two sample tests, regression and correlation, analysis of variance, Chi-square distribution, F-distribution, and computer applications.

Equivalent Course(s) BA 3605

Course Name	Social Policy	**Credit Hours**	**3** (3,0)
Course Code	SS 1209	**Prerequisite(s)**	SS 2307

Course Description

The course discusses concepts and paradigms of social policy, social policy issues, such as, education, housing, health, Corporate Social Responsibility (CSR), and social service delivery.

Equivalent Course(s) None

Course Name	Culture, Art and Society	**Credit Hours**	**3** (3,0)
Course Code	SS 2312	**Prerequisite(s)**	None

Course Description

In addition to the stylistic and structural components of art, this course includes the historical, social, religious, political, technological, and philosophical issues related to the production and development of art, along with basic understanding of culture and society, globalization of art and culture, media and development of popular culture, alternative cultures subcultures, and public relations.

Equivalent Course(s) None

Course Name	Language-I	**Credit Hours**	**3** (3,0)
Course Code	SS 3509	**Prerequisite(s)**	None

Course Description

The course focuses on the practical and the day-to-day use of the target language in relation to everyday life in the target culture, the communicative approach-working mainly through video documents-offers role-plays, group discussions, listening comprehension exercises as well as written comprehension, and essay-writing.

Equivalent Course(s) None

Course Name	Political Economy	**Credit Hours**	**3** (3,0)
Course Code	SS 3606	**Prerequisite(s)**	None

Course Description

The course adapts an interdisciplinary approach ranging from political science, economics, history, and sociology in order to offer a broad introduction to current issues in political economy. Topics include mercantilism and liberalism, structuralism, the post-structuralism, Marxian definition of capitalism, difference between capitalist class processes (the basis for capitalism) from non-capitalist (slave, feudal, ancient, communal) class processes, international trade , money and debt, global security, knowledge and power, economic integration, development and multinational corporations, food, hunger, and environment.

Equivalent Course(s) None

Course Name	Research Methods	**Credit Hours**	**3** (3,0)
Course Code	SS 3504	**Prerequisite(s)**	None

Course Description

This course introduces students to the quantitative/qualitative research methods, social research, steps involved in conducting research, sampling, and data collection tools, data collection and processing, data management, data analysis and techniques, and Statistical Product and Service Solutions (SPSS).

Equivalent Course(s) BA 3603, BA 5206

Course Name	International Law and Human Rights	**Credit Hours**	**3** (3,0)
Course Code	SS 3605	**Prerequisite(s)**	None

Course Description

The course covers origins, content, applications, and ongoing development of human rights principles and doctrines in both international and national politics. Furthermore, this course discusses the historical development of human rights principles and doctrines, including the religious and philosophical ideas that have contributed to their development, the reasons for shifting from moral movements for human rights and national human rights doctrines to the codification of international human rights law. Also, it explains the work of governments, multilateral, and international and local non-governmental organizations in the enforcement of human rights laws, major debates in the field of human rights, including debates over the limits of sovereignty, universality versus relativism, individual versus group rights, and first, second, and third generation rights.

Equivalent Course(s) None

Course Name	Language-II	**Credit Hours**	**3** (3,0)
Course Code	SS 3609	**Prerequisite(s)**	SS 3509

Course Description

Language-II is the continuation of Language-I to equip students with advanced skills and knowledge to comprehend, speak, read and write competently in real-life situations. Topics include principal of language grammar, elementary communication, language for reading knowledge, and conversation and composition.

Equivalent Course(s) None

Course Name	Development Studies	**Credit Hours**	**3** (3,0)
Course Code	SS 3503	**Prerequisite(s)**	None

Course Description

The course explores the complex and multidimensional nature of development. It covers a broad overview of the development studies, poverty, gender, culture, globalization, empowerment, population, environment and livelihood.

Equivalent Course(s) None

Course Name	Introduction to Health Psychology	**Credit Hours**	**3** (3,0)
Course Code	SS 4707	**Prerequisite(s)**	SS 2306

Course Description

The course helps in identifying behaviors and experiences that promote health, give rise to illness, and influence the effectiveness of health care. Topics include occupational health and public health.

Equivalent Course(s) None

Course Name	Research Project-I	**Credit Hours**	**3** (3,0)
Course Code	SS 4709	**Prerequisite(s)**	SS 3504,SS 2318 SS 2418

Course Description

The course covers research methods application to research report, and research proposal writing, applying a systematic approach to solve problems, analyze, evaluate, and apply relevant information from a variety of sources, and writing accurately, concisely, and logically in American Psychological Association or Harvard styles.

Equivalent Course(s) None

Course Name	Enlightenment	**Credit Hours**	**3** (3,0)
Course Code	SS 2405	**Prerequisite(s)**	SS 2413

Course Description

The course discusses classic Enlightenment texts and writers such as Smith, Diderot, Millar, Schiller, Hume, Kant, and Rousseau. This course explores the ways that contemporary thinkers like Derrida, Foucault, Habermas, Adorno, Lyotard and Luhman have absorbed, engaged and either rejected the Enlightenment completely or attempted to resurrect its more positive and hopeful aspects.

Equivalent Course(s) None

Course Name	Public Policy	**Credit Hours**	**3** (3,0)
Course Code	SS 4804	**Prerequisite(s)**	SS 1209

Course Description

The course explores both the theoretical and practical aspects of performing policy analysis. The themes of the course include current policy issues from the perspectives of local, state, and federal governments, non-governmental and advocacy organizations, needs and demands for public action, organization and nature of political support, and processes and problems of decision making in major policy areas.

Equivalent Course(s) None

Course Name	Research Project-II	**Credit Hours**	**3** (3,0)
Course Code	SS 4809	**Prerequisite(s)**	SS 4709

Course Description

The course covers research methods application to research report, and research proposal writing, applying a systematic approach to solve problems, analyze, evaluate, and apply relevant information from a variety of sources, and writing accurately, concisely, and logically in American Psychological Association or Harvard styles.

Equivalent Course(s) None

3.2 Master of Science and PhD

3.2.1 Master of Science in Social Sciences (MSSS)

Students enrolled in the Master of Science in Social Sciences (MSSS) program are required to complete 30 credit hours within five (5) years. The break-up of 30 credit hour courses is as follows:

- *2 Compulsory Courses (6 Credit Hours)*
- *4 Electives[21] (12 Credit Hours)*
- *2 Independent Research Studies (IRS) (6 Credit Hours)*
- *1 Thesis/2 additional electives instead of thesis (6 Credit Hours)*

Course Code	Course Title	Page #
MSSS	**First Year**	
	Fall Semester	
SS 5229	Advance Research Methods and Techniques (ARMT)-I (Qualitative)	121
SS 5122	Advance Research Methods and Techniques (ARMT)-II (Quantitative)	121
SS 5xxx	Elective-I	223
SS 5xxx	Elective-II	223
	Spring Semester	
SS 5108	Independent Research Study-I	-
SS 5xxx	Elective-III	223
SS 5xxx	Elective-V	223
	Summer Semester	
SS 5208	Independent Research Study-II	-
	Second Year	
	Fall Semester	
SS 5109	Thesis/2 additional courses instead of Thesis	-

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

21 List of Electives is given in Appendix B.

3.2.1 Master of Science in Social Science (MSSS)

Course Name	Advance Research Methods and Techniques-I (Qualitative)	**Credit Hours**	**3** (3,0)
Course Code	SS 5229	**Prerequisite(s)**	None

Course Description

This course develops critical and practical understandings for evaluating and conducting research from five qualitative research traditions (narrative research, grounded theory, phenomenology, ethnography and case studies). It develops an ethically and procedurally sound qualitative research proposal for qualitative research designs; collect, analyze and interpret qualitative, textual, and other non-traditional forms of data obtained through various tools and sources.

Equivalent Course(s) None

Course Name	Advance Research Methods and Techniques-II (Quantitative)	**Credit Hours**	**3** (3,0)
Course Code	SS 5122	**Prerequisite(s)**	None

Course Description

In this course, concepts, techniques and applications of quantitative methods for decision making are introduced. Topics include: forecasting, regression analysis, analysis of variance, statistical decision theory, utility theory, linear programming, and waiting lines. The course incorporates computer software packages.

Equivalent Course(s) None

3.2.2 DOCTOR OF PHILOSOPHY IN SOCIAL SCIENCES (PhD SS)

Students enrolled in the Doctor of Philosophy in Social Sciences (PhD SS) Program with a MS /M.Phil (with minimum 5 years of formal university education) are required to complete a total of 48 credit hours within five (5) years. The following is the break-up of the 48 credit hour courses:

- *2 Compulsory Courses (6 Credit Hours)*
- *2 Electives[22] (6 Credit Hours)*
- *2 Independent Research Studies (6 Credit Hours)*
- *1 Dissertation (30 Credit Hours)*

Course Code	Course Title	Page #
PhD	**First Year**	
	Fall Semester	
SS 6313	Advance Research Methods and Techniques-I (Qualitative)	123
SS 6105	Advance Research Methods and Techniques-II (Quantitative)	123
SS 5xxx	Elective I	224
	Spring Semester	
SS 6108	Independent Research Study-I	-
SS 6208	Independent Research Study-II	-
SS 5xxx	Elective II	224
	Second Year	
	Fall Semester	
MS 6x09	Dissertation	-
	Spring Semester	
MS 6x09	Dissertation	-

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

22 List of Electives is provided in Appendix B.

3.2.2 DOCTOR OF PHILOSOPHY IN SOCIAL SCIENCES (PhD)

Course Name	Advance Research Methods and Techniques-I (Qualitative)	**Credit Hours**	**3** (3,0)
Course Code	SS 6313	**Prerequisite(s)**	None

Course Description

This course develops critical and practical understandings for evaluating and conducting research from five qualitative research traditions (narrative research, grounded theory, phenomenology, ethnography and case studies). Develops an ethically and procedurally sound qualitative research proposal for qualitative research designs; collect, analyze and interpret qualitative, textual, and other non-traditional forms of data obtained through various tools and sources.

Equivalent Course(s) None

Course Name	Advance Research Methods and Techniques-II (Quantitative)	**Credit Hours**	**3** (3,0)
Course Code	SS 6105	**Prerequisite(s)**	None

Course Description

In this course, concepts, techniques and applications of quantitative methods for decision making are introduced. Topics include; forecasting, regression analysis, analysis of variance, statistical decision theory, utility theory, linear programming, and waiting lines. The course incorporates computer software packages.

Equivalent Course(s) None

Department of Media Sciences

4.1 Bachelor of Science

4.1.1 Bachelor of Media Science (BMS)

Students enrolled in the Bachelor of Media Science (BMS) program are required to complete 43 courses and a thesis within seven (7) years. The break-up of the 43 courses, including thesis is as follows:

- *33 Compulsory Courses (99 Credit Hours)*
- *7 Major Requirements*[23] *(21 Credit Hours)*
- *3 Open Electives*[24] *(9 Credit Hours)*
- *1 Thesis*[25] *(6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
MD 1122	English for General Purposes (EGP)	127
MD 1107	Drawing and Perspective	127
MD 1115	Introduction to Media Industries	127
MD 1116	Civilization Studies-I	128
MD 2402	Islamiat and Pakistan Studies/Humanities	128
MD 3601	Art of Music	128
	Spring Semester	
MD 1222	English for Academic Purposes (EAP)	129
MD 1104	Culture, Media, and Society	129
MD 1106	Photography	129
MD 1119	Play Analysis	130
MD 1216	Civilization Studies-II	130
MD 2323	Production Practices-I	130
	Second Year	
	Fall Semester	
MD 1211	Basic Design	130
MD 1217	Introduction to Sound	131
MD 2321	History and Aesthetics of Film	131
MD 2325	Media Research	131
MD 2313	Idea Development	132
MD 2423	Theater Project	132
	Spring Semester	
MD 1118	Topics in Asian Literature	132
MD 2318	History of Commercial Art	133
MD 2425	Audiovisual Editing	133
MD 2427	Design Practices-I	133
MD 3523	Production Practices-II	134
MD 3505	Principles of Journalism	134

23 List of Major Courses is given in Appendix C.
24 List of Electives is given in Appendix B.
25 Guidlines for completion of Thesis are given in Appendix D.

Course Code	Course Title	Page #
	Third Year	
	Fall Semester	
MD 1213	Creative Writing	134
MD 2424	Media Psychology	134
MD 3518	Animation and Motion Graphics	135
MD 3527	Design Practices-II	135
MD 3511	Radio Channel Project-I	135
MD 4714	Producing Short Narratives	135
	Spring Semester	
MD 2405	Media Laws and Ethics	136
MD 4xxx	Major-I	232
MD 4xxx	Major-II	232
MD 4xxx	Major-III	232
MD 4xxx	Major-IV	232
MD 4xxx	Elective-I	225
	Fourth Year	
	Fall Semester	
MD 4701	State and Nation Building in Pakistan	136
MD 4xxx	Major-V	232
MD 4xxx	Major-VI	232
MD 4xxx	Major-VII	232
MD 4xxx	Elective-II	225
	Spring Semester	
MD 3506	Theories of Visual Culture	136
MD 4807	Thesis-I	137
MD 4xxx	Elective-III	225
	Summer Semester	
MD 4808	Thesis-II	137

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

Course Name	English for General Purposes (EGP)	**Credit Hours**	**3** (3,0)
Course Code	MD 1122	**Prerequisite(s)**	None

Course Description

The course is aimed at improving English language communication and presentation skills of students. With a multidimensional approach, the course enables the students to practice the use of English in everyday situations, building upon all four skills: listening, speaking, reading and writing. It prepares them to participate in seminars and discussions and make effective presentations, with an awareness of the audience and effective use of verbal and non-verbal communication. The course addresses the basic English language issues faced by the learners, while also aiming to foster in them, critical skills to develop a concise and clear argument, respond to others' comments and negotiate their own point of view persuasively. The course uses an interactive, participatory methodology, to engage learners' interest and boost their confidence to use English in everyday communication in formal and informal contexts.

Equivalent Course(s) ME 1205, CSC 2101, SS 2316, BIO 1211

Course Name	Drawing and Perspective	**Credit Hours**	**3** (3,0)
Course Code	MD 1107	**Prerequisite(s)**	None

Course Description

This course introduces students to visual reading and thinking skills through the practice of elementary drawing techniques. The topics include linear and aerial perspective, composition, shape, space, volume, and proportion, depth and distance, horizons and vanishing-points, the use and manipulation of shadow and light, stippling and cross-hatching; primary, secondary, and complementary colors, rendering mood, expression, and motion.

Equivalent Course(s) None

Course Name	Introduction to Media Industries	**Credit Hours**	**3** (3,0)
Course Code	MD 1115	**Prerequisite(s)**	None

Course Description

This course introduces students to the history, development, and impact of mass media nationally and internationally, with a focus on the different media outlets and industry/business models. It covers history of print and broadcast journalism, print, broadcast, and digital formats, fringe, mainstream, regional, national and international media structures, formats and business models. Also, functions and evolution of journalism, film, TV, print media, advertising, and digital technologies. Introduction to media convergence environment.

Equivalent Course(s) None

Course Name	Civilization Studies-I	**Credit Hours**	**3** (3,0)
Course Code	MD 1116	**Prerequisite(s)**	None

Course Description

The course investigates major historical civilizations in Ancient Egypt, China, and India; classical Greece and Rome; and medieval and renaissance Europe. It also covers oral cultures and oral transmission, the invention of writing, the production and preservation of cultural and social artifacts and texts, the emergence, development, dissemination, and cross-cultural influences of aesthetic practices. Topics include comparative analysis of Asian, Greco-Roman, Chinese and Medieval traditions from Pyramids to Pre-Socratics and from Ancient Chinese thought to Early Cathedrals and from Bronze revolution in Central Asia to Iron revolution in India to the discovery of Laws of Reflecton by Alhazen. The course places a fundamental emphasis on the history of ideas, cultural expressions, and social institutions. The course will stop at the discussions of the emergence of Gothic Cathedrals in France.

Equivalent Course(s) None

Course Name	Islamiat and Pakistan Studies/Humanities	**Credit Hours**	**3** (3,0)
Course Code	MD 2402	**Prerequisite(s)**	None

Course Description

The course focuses on the history, theory, and practice of Islam and other religions, and their social, political, and cultural importance and impact in Pakistan and beyond. It covers History of religion, religious practice and thought, major interpretive traditions, religion and society, religion and politics, mysticism and orthodoxy, Comparative religion, religion and gender, Islam and other Abrahamic religions, Islam and modernity.

Equivalent Course(s) SS 1109, BIO 2303, CSC 1105, BA 1106

Course Name	Art of Music	**Credit Hours**	**3** (3,0)
Course Code	MD 3601	**Prerequisite(s)**	None

Course Description

This course focuses upon the evolution and development of sound and music. It covers global and local genres and styles (western art music, jazz, Indian classical, qawwali, hip-hop, rock, punk, etc.), the history and evolution of instruments and instrumentation, electronic and digital music technologies, performance modes, forms, and venues, music's influence in the media and on popular culture, and music's relationship with the visual and performing arts.

Equivalent Course(s) None

Course Name	English for Academic Purposes (EAP)	**Credit Hours**	**3** (3,0)
Course Code	MD 1222	**Prerequisite(s)**	MD 1122

Course Description

The course is designed to improve academic English language and study skills of students. The course follows a multidimensional approach based on the four language skills with a specific focus on reading and writing skills that are required in research-based study at university level. The course includes listening and note taking skills, library and internet use for locating and evaluating research articles. In addition, the course seeks to enable the students to of speed read, skim, scan and infer from written text. The course specifically focuses on enabling the students to experiment with complex grammatical forms, sentence structures and logical paragraph development, to present coherent, cohesive and effective arguments clearly in research-based writing according to the requirements of their specific discipline.

Equivalent Course(s) ME 1205, CSC 1102, SS 2316, BIO 1211

Course Name	Culture, Media and Society	**Credit Hours**	**3** (3,0)
Course Code	MD 1104	**Prerequisite(s)**	MD 1115, MD 1122

Course Description

The course covers the basic theoretical concepts and debates focused on the relations among media, cultural texts, and the communities within which these are produced and disseminated. The topics include Theories of media and popular culture – Marxism, structuralism, post-structuralism, modernity, and post-modernism. Subcultures and youth cultures. The role of media in culture and society, the politics of identity (race, gender, ethnicity, religion, sexuality, class, and nationality), the emergence and effect of cyber culture, globalization and multiculturalism.

Equivalent Course(s) SS 2312

Course Name	Photography	**Credit Hours**	**3** (3,0)
Course Code	MD1106	**Prerequisite(s)**	MD 1107

Course Description

This course introduces students to the history, science, and art of photography. It covers cameras, their construction and use, use of digital versus film as a medium, set-up, focus, framing, composition, indoor versus outdoor photography (studio versus landscape), lenses, apertures, lighting, film and shutter speed, exposure, and depth of field, panning, zooming, and light-painting, black-and-white versus color, basic Photoshop editing and manipulating, narrative photography, developing and printing, and portfolio presentation.

Equivalent Course(s) None

Course Name	Play Analysis	**Credit Hours**	**3** (3,0)
Course Code	MD 1119	**Prerequisite(s)**	MD 1122

Course Description

The focus of this course is upon a variety of techniques and strategies through which theatrical texts are analyzed and understood. It discusses plot and scene structures, character construction, the use and effect of language, syntax, rhythm, tone, sound, gesture, movement, design, and spatial composition, the origins and development of performance conventions, the relationship between audiences and performances, the interplay between performed events, and cultural and social formations.

Equivalent Course(s) None

Course Name	Civilization Studies-II	**Credit Hours**	**3** (3,0)
Course Code	MD 1216	**Prerequisite(s)**	MD 1116

Course Description

This course will start from the emergence of Gothic Cathedral and will offer an introduction to the aesthetic and contextual study of different movements from renaissance to the present. The course will investigate how one art movement triggered the other and how to discover connections among the art movements of different times. The course also discusses societies, cultures, and art of major Islamic civilizations through history.

Equivalent Course(s) None

Course Name	Production Practices-I	**Credit Hours**	**3** (3,0)
Course Code	MD 2323	**Prerequisite(s)**	MD 1107

Course Description

The course introduces students to the basic craft of film and video production. Students will practice how to conceive, shoot, edit, and show a silent, low-budget, and simple narrative film. The topics include the technology of motion pictures, HD cameras, flip-books, stop-motion animation, frames, storyboarding, basic camera set-ups, basic lighting, framing, focus and lenses, panning, basic editing, creating rough-cuts, the role of the DP, production processes, and film screenings.

Equivalent Course(s) None

Course Name	Basic Design	**Credit Hours**	**3** (3,0)
Course Code	MD 1211	**Prerequisite(s)**	MD 1107

Course Description

This course introduces students to fundamental elements and principles of design. It covers grids, hierarchies, scale, point, line, texture, color, value, proportion, space, and plane, figure-ground, color theory; form and composition, issues of balance, emphasis, position, unity, pattern, harmony, contrast, rhythm, repetition, and movement, and the anatomy of fonts and types.

Equivalent Course(s) None

Course Name	Introduction to Sound	**Credit Hours**	**3** (3,0)
Course Code	MD 1217	**Prerequisite(s)**	MD 3601

Course Description

The course introduces students to; the properties and uses of sound in media texts, evolving technologies, and techniques employed to create sound recordings. It covers basic sound recording and editing (looping, sampling, sequencing, mixing, and mastering), introduction to Presonus Studio-1, volume envelopes, voice-over editing, dynamics processing, sound design, and film scoring.

Equivalent Course(s) None

Course Name	History and Aesthetics of Film	**Credit Hours**	**3** (3,0)
Course Code	MD 2321	**Prerequisite(s)**	MD 2323

Course Description

The course covers the history and aesthetics of world cinema from its origins to the present, emphasizing major directors, historically and critically important movements and films, the emergence and development of film genres, and the aesthetic effects of technological innovations. The topics include Origins (Edison, Melies and Griffith), German Expressionism (Wieneand Lang), Soviet montage (Eisenstein), American and Indian Silent Films (Chaplin, Keaton, and Wadia Movietone), Impressionism and Surrealism (Bunuel and Renoir), national cinemas (Italy, Japan, France, Eastern Europe, and India), American Melodrama (Sirk and Minnelli), film genres, the studio system, auteur directors, technological developments and apparatus theory, and experimental film.

Equivalent Course(s) None

Course Name	Media Research	**Credit Hours**	**3** (3,0)
Course Code	MD 2325	**Prerequisite(s)**	MD 1104, MD 1222

Course Description

The course teaches the quantitative and qualitative methods for media research. It covers designing research question, reviewing the literature, writing proposal, researching industry, researching text, researching audiences, research tools-questionnaire, focus group interviews, ethnography, phenomenology, hermeneutics, etc.

Equivalent Course(s) None

Course Name	Idea Development	**Credit Hours**	**3** (3,0)
Course Code	MD 2313	**Prerequisite(s)**	MD 1107

Course Description

The course introduces students to strategies that will help them generate narrative ideas applicable to advertising, journalism, and film and video production. It covers theories and structures of narrative, elements of storytelling, the psychology of narrative, effective brainstorming, visual versus print narratives, finding images, idioms, analogies, and metaphors, parables and allegories, causality, probability, and necessity, simple and complex plots, inventing and developing characters, establishing place, conceiving, and shaping stories visually.

Equivalent Course(s) None

Course Name	Theater Project	**Credit Hours**	**3** (3,0)
Course Code	MD 2423	**Prerequisite(s)**	MD 1119

Course Description

The course discusses the techniques of theater and documentary production using a form developed in the US through the auspices of the Federal Theatre Project, and to create an original Living Newspaper performance. It covers history and practice of documentary theater and performance, the Living Newspaper and the Federal Theater Project, selecting and researching newsworthy topics, conducting archival research, conducting field interviews, improvisation and script development, staging and design, and rehearsals and performance.

Equivalent Course(s) None

Course Name	Topics in Asian Literature	**Credit Hours**	**3** (3,0)
Course Code	MD 1118	**Prerequisite(s)**	MD 1222

Course Description

The course introduces students to a range of literatures produced in Asia-fiction, poetry, and drama. It covers a range of themes and styles employed by Asian writers, examines how these writers appropriated and renewed older narrative forms and conventions, and consider how and why this body of work both responds to/and reconstructs Asian constructs of nation, society, community, and identity.

Equivalent Course(s) None

Course Name	History of Commercial Art	**Credit Hours**	**3** (3,0)
Course Code	MD 2318	**Prerequisite(s)**	MD 1107, MD 1211

Course Description

The course introduces students to the history of commercial art from lithography to logos, book design to branding, stencils to motion graphics, and covering the origins and history of advertising and design. The topics include defining commercial art, origins and history of commercial art and design, inventing alphabets, illuminated manuscripts, the psychology of branding, graphic design versus advertising design, impact of new technologies from the printing press to computers, and the past, present, and future of commercial design.

Equivalent Course(s) None

Course Name	Audiovisual Editing	**Credit Hours**	**3** (3,0)
Course Code	MD 2425	**Prerequisite(s)**	MD 2323, MD 1217

Course Description

This course discusses the aesthetics and techniques of sound and video editing. The topics include perspective, transitions, and pace, cutting, splicing, fading, dissolving, and wiping, controlling and manipulating content and audience response, continuity editing, frame rates and temporal compression, visual effects, axis of action, jump-cuts, eye-lines and match-cuts, incorporating sound, ambient and Foley sound effects, and musical scoring.

Equivalent Course(s) None

Course Name	Design Practices-I	**Credit Hours**	**3** (3,0)
Course Code	MD 2427	**Prerequisite(s)**	MD 1211

Course Description

The course covers the theory and practice of design to inculcate logical methods of reasoning through design problems, and to polish aesthetic sensibilities. The course introduces students to all the important software such as InDesign, Illustrator, Photoshop, CorelDraw, Freehand, etc. Topics may include package design, basic typography (Urdu and English), signs, symbols, logos and identities, illustration, photography, 2-D versus 3-D design, visual problem-solving, symmetry and asymmetry, rhythm and balance, hierarchies, layers, transparencies, and visual thinking.

Equivalent Course(s) None

Course Name	Production Practices-II	**Credit Hours**	**3** (3,0)
Course Code	MD 3523	**Prerequisite(s)**	MD 1217, MD 2313 MD 2323

Course Description

The course develops and extends the theories and techniques introduced in Production Practices-I. Production Practices II introduces students to use elements of sound and dialogue with visuals in narrative films. It covers advanced single-camera techniques, using camera angles, jibs, cranes, tracks, and dolleys; manipulating color and light, lenses and looks, digital speed, color temperatures, filters, and gels, visual storytelling, 3-act structures, production design, advanced sound editing, advanced digital editing, and linear and non-linear pre and post production strategies.

Equivalent Course(s) None

Course Name	Principles of Journalism	**Credit Hours**	**3** (3,0)
Course Code	MD 3505	**Prerequisite(s)**	MD 1122

Course Description

The course introduces students to basic news, feature, and editorial writing, and reporting. It covers lead writing, story-structure, interviewing, note-taking, background research, issue analysis, feature development, editorials, editing, journalistic ethics, print versus digital, and evidence and inference.

Equivalent Course(s) None

Course Name	Creative Writing	**Credit Hours**	**3** (3,0)
Course Code	MD 1213	**Prerequisite(s)**	MD 1122, MD 1118

Course Description

The course introduces students to various forms and techniques of creative writing in both English and Urdu. The topics include understanding and analyzing creative texts, writing prose fiction and non-fiction, understanding and writing poetry, and creative expression in different genres and language styles.

Equivalent Course(s) None

Course Name	Media Psychology	**Credit Hours**	**3** (3,0)
Course Code	MD 2424	**Prerequisite(s)**	MD 1104, MD 1222

Course Description

The course introduces students to the basic principles of human behavior, with a focus on how different media shape and affect who we are and how we think. It covers formation of personality types, the structures of learning, the development and manifestation of phobias and neuroses, the functions of memory, perception, emotion, and the effect of media images on self-perception.

Equivalent Course(s) None

Course Name	Animation and Motion Graphics	**Credit Hours**	**3** (3,0)
Course Code	MD 3518	**Prerequisite(s)**	MD 2425, MD 2427

Course Description

This course discusses the principles of motion graphic design, and to teach them how to create complex, multi-layered animations. It also covers After Effects (AE) basics; interface and palettes, vector art versus bitmap art, anchor points, typography in AE, track mattes, layers, framing, basic animation, and rotoscoping, motion masks, composing and nesting, using green screens, color keying and compositing, expressions in AE; scripting, time remapping, and temporal processing.

Equivalent Course(s) None

Course Name	Design Practices-II	**Credit Hours**	**3** (3,0)
Course Code	MD 3527	**Prerequisite(s)**	MD 2427

Course Description

This course extends and develops theories and practices introduced in Graphic Design-I. It discusses contemporary trends and styles, advanced layout strategies, merging text and art, sustainable design, propaganda design, the psychological impact of design, advanced typography (Urdu and English), publication design, brochures, packaging, posters, cover art, advanced Photoshop techniques, and advanced Illustrator techniques.

Equivalent Course(s) None

Course Name	Radio Channel Project-I	**Credit Hours**	**3** (3,0)
Course Code	MD 3511	**Prerequisite(s)**	MD 1217, MD 3601

Course Description

The course aims to train students to apply in a practical setting the skills they've learned in their sound and music classes using ***SZABIST***'s on-campus radio station. It discusses digital audio recording, digital workstations, and introduction to Studio 1, editing techniques, and radio story production and programming.

Equivalent Course(s) None

Course Name	Producing Short Narratives	**Credit Hours**	**3** (3,0)
Course Code	MD 4714	**Prerequisite(s)**	MD 3523

Course Description

The course focuses on how to conceive, write, storyboard, film, edit, produce, and present a short project employing the skills they have learned in their production and design courses in the previous five semesters. It discusses conceiving and scripting, creating characters, design and art direction, light and shot referencing, creating storyboards and mood boards, music and sound selection and design, short narratives across cultures, music videos, and PSAs.

Equivalent Course(s) None

Course Name	Media Laws and Ethics	**Credit Hours**	**3** (3,0)
Course Code	MD 2405	**Prerequisite(s)**	MD 1115, MD 1222

Course Description

The course introduces students to the way media policies are influenced and shaped by legal and ethical considerations. It covers basic ethical theories, defining media laws, free speech and human rights, press freedoms and democratic politics, slander, defamation and libel, morality, propriety and obscenity laws, private and public knowledge, objectivity and sensationalism, conflicts of interest and transparency, the use, abuse, and protection of sources, accuracy, liability and licensing, regulating advertising, copyright laws and fair-use, self-censorship and content regulation, federal, provincial, and local laws, Pakistan Electronic Media Regulatory Authority (PEMRA), new media technologies and the law, and contempt of court.

Equivalent Course(s) None

Course Name	State and Nation Building in Pakistan	**Credit Hours**	**3** (3,0)
Course Code	MD 4701	**Prerequisite(s)**	MD 1216, MD 1222

Course Description

The focus of this course is on both the idea and fact of Pakistan starting with the 1857 War of Independence, extending through Partition, the founding of the nation and its subsequent dismemberment, and ending with contemporary issues and challenges facing our future. The topics include theories of nationalism, Iqbal and Pakistan, partition and political relations with India, military versus civilian rule 1971 war and the break-up of Pakistan, 1973 Constitution, secularism and Islam, national symbols and national identity, the role of the media, foreign policy, and national identity.

Equivalent Course(s) None

Course Name	Theories of Visual Culture	**Credit Hours**	**3** (3,0)
Course Code	MD 3506	**Prerequisite(s)**	MD 1104, MD 1222

Course Description

The course introduces students to a range of theoretical approaches to defining, analyzing, and categorizing visual texts including, but not limited to, films, photographs, advertisements, television shows, sculpture, graffiti, architecture, paintings, performance, fashion, graphic and interior design. It covers theory versus praxis, defining the visual, the sociological processes of culture, the politics of visual culture, conspicuous consumption, Marxist, feminist, structuralism, and semiological approaches to visual culture, substance versus style, and McLuhan, media, and messages.

Equivalent Course(s) None

Course Name	Thesis-I	**Credit Hours**	**3** (3,0)
Course Code	MD 4807	**Prerequisite(s)**	Dept. Permission (38 Courses)

Course Description	It is a two-semester project that allows advertising, journalism, and film students the opportunity to demonstrate to the Media Sciences faculty their proficiency in their chosen area of specialization. It covers proposal development and pre-production (Communication design and market research, component gathering, scriptwriting, campaign planning, storyboarding, production design, and story research).
Equivalent Course(s)	None

Course Name	Thesis-II	**Credit Hours**	**3** (3,0)
Course Code	MD 4808	**Prerequisite(s)**	MD 4807

Course Description	The course is a culmination of thesis I. Students start their projects (films, documentaries, journalistic assignments, written work, advertising or design projects) and makes final presentations to demonstrate their proficiency in their chosen area of specialization.
Equivalent Course(s)	None

4.2.1 MASTER OF ADVERTISING

Students enrolled in Master of Advertising program are required to complete 10 courses and a 6-credit hour research project within five (5) years. The breakup of the courses is as follows:

- *10 Compulsory Courses (30 Credit Hours)*
- *1 Research Project (6 Credit Hours)*

Master of Advertising (36 credit hours)

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
MD 5162	Advertising and Marketing Research	139
MD 5141	Idea Development	139
MD 5161	Integrated Marketing Communications	139
MD 5207	Media Evolution and Innovation	140
	Spring Semester	
MD 5102	Media and Contemporary Culture	140
MD 5262	Brand Management	140
MD 5265	Digital Advertising	140
MD 5264	Copywriting and Advertising Conceptualization	141
	Summer Semester	
MD 5351	Campaign Strategy	141
MD 5165	Digital Media Content	141
	Second Year	
	Fall Semester	
MD 5349	Research Project (6 credits)	141

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

4.2.1 Master of Advertising

Course Name	Advertising and Marketing Research	**Credit Hours**	**3** (3,0)
Course Code	MD 5162	**Prerequisite(s)**	None

Course Description

This course teaches students how to conduct research that helps them understand how consumer behavior and advertisements work, and that maximizes the effective reach of advertising campaigns. It covers advanced quantitative vs. qualitative research strategies, collecting and interpreting data sets, customized vs. syndicated research, effective pre and post testing studies, flows of attention, emotion, and meaning, brand linkage and branding moments, ad tracking, longitudinal vs. latitudinal studies, selective perception, picture, and copy sorts.

Equivalent Course(s) BA 5221

Course Name	Idea Development	**Credit Hours**	**3** (3,0)
Course Code	MD 5141	**Prerequisite(s)**	None

Course Description

This course develops an understanding of students about strategies that help them generate narrative ideas applicable to advertising, journalism, and film and video production. The topics include theories and structures of narrative, elements of storytelling, the psychology of narrative, effective brainstorming, visual vs. print narratives, finding images, idioms, analogies, and metaphors, parables and allegories, causality, probability, and necessity, simple and complex plots, inventing and developing characters, establishing place, conceiving, and shaping stories visually.

Equivalent Course(s) None

Course Name	Integrated Marketing Communications	**Credit Hours**	**3** (3,0)
Course Code	MD 5161	**Prerequisite(s)**	None

Course Description

The course teaches students how Integrated Marketing Communication combines traditionally separate advertising, public relations, and marketing functions into a seamless program. It covers corporate image and brand management, consumer behavior, forging brand loyalty, situation analysis, marketing objectives, marketing budgets, media synergy, mass vs. niche audiences, 4 Ps vs. 4 Cs, elements of effective communication and promotion, creating opportunities, and product positioning.

Equivalent Course(s) BA 5121

4.2.1 Master of Advertising

Course Name	Media Evolution and Innovation	**Credit Hours**	**3** (3,0)
Course Code	MD 5207	**Prerequisite(s)**	None
Course Description	The course analyzes the emergence, growth, and development of media practices and technologies, and to chart future possibilities. The topics include birth of media technologies, traditional media content, economic, social and cultural influences, traditional content and technologies, emergence, evolution, and institutionalization of telecommunications' technologies, synergy and integration, and ethical implications of developing technologies and future directions.		
Equivalent Course(s)	None		

Course Name	Media and Contemporary Culture	**Credit Hours**	**3** (3,0)
Course Code	MD 5102	**Prerequisite(s)**	None
Course Description	The course introduces students to the theoretical foundations of contemporary cultural criticism, especially as this relates to aesthetic, social, and political practices across media. It also covers theories of language and representation, signification and textuality, narrative and image, fantasy and ideology, modernity and post modernity, and theories of Marx, Freud, Saussure, Horkheimer, Adorno, Barthes, Williams, Hall, Mulvey, Fiske, and Shohat.		
Equivalent Course(s)	None		

Course Name	Brand Management	**Credit Hours**	**3** (3,0)
Course Code	MD 5262	**Prerequisite(s)**	MD 5161
Course Description	The course aims to teach students how advertising and management divisions within advertising agencies and client organizations cooperate to define and sustain a cogent brand identity. The topics include defining, developing and sustaining brands, the brand lifecycle, consumer aspiration function, the advertising spiral, brand planning, pioneering, competitive, and retentive stages, generational marketing, positioning, and client-agency relationships.		
Equivalent Course(s)	BA 5122		

Course Name	Digital Advertising	**Credit Hours**	**3** (3,0)
Course Code	MD 5265	**Prerequisite(s)**	MD 5161
Course Description	The course teaches students the history, evolution, nature, and influence of new media technologies. The topics include Social networks (facebook, twitter, MySpace, Orchid, GoogleBuzz), viral campaigns, alternate reality gaming, virtual brand identities, banner advertising, crowd-sourcing, mobile advertising, instantaneous consumer feedback, interaction and web design, and interactive design physical computing		
Equivalent Course(s)	None		

4.2.1 Master of Advertising

Course Name	Copywriting and Advertising Conceptualization	**Credit Hours**	**3** (3,0)
Course Code	MD 5264	**Prerequisite(s)**	MD 5141

Course Description

This course teaches students how to conceive, write and layout copy for print, internet, and television advertising. The topics include copy devices (clichés, action words, emotive words, alliteration, assonance, colloquialisms, repetition, widows, and orphans), copy elements (overlines, headlines, subheads, taglines, action calls), negative vs. positive copy, humor and risk, layout and balance, sensory appeal, copywriting brochures, billboards, and posters.

Equivalent Course(s) None

Course Name	Campaign Strategy	**Credit Hours**	**3** (3,0)
Course Code	MD 5351	**Prerequisite(s)**	MD 5161

Course Description

This course discusses how to analyze advertising research in order to arrive at a central concept or idea around which to build an advertising campaign. It also covers identifying communication objectives, data correlation and analysis, the 360 degree campaign, identifying common conceptual threads, using metaphor and displacement, budgeting, viral and buzz marketing, social media and new media advertising, consumer feedback, and campaign effectiveness.

Equivalent Course(s) None

Course Name	Digital Media Content	**Credit Hours**	**3** (3,0)
Course Code	MD 5165	**Prerequisite(s)**	MD 5265

Course Description

This course covers the various digital platforms that exist in todays interactive space including viral videos, podcasts, blogs, websites, social media sites and explores how brands can use these media to develop content that is interactive and engaging for customers. Functions and methods of SEO are also covered in this course.

Equivalent Course(s) None

Course Name	Research Project	**Credit Hours**	**6** (6,0)
Course Code	MD 5349	**Prerequisite(s)**	Dept. Permission

Course Description

Research Project provides students with an opportunity to conduct a sustained research and analysis focused on a subject of their choice.

Equivalent Course(s) None

4.2.2 Master of Science in Media Studies (MS Media Studies)

Students enrolled in Master of Science in Media Studies (MS Media Studies) program are required to complete 30 credits within five (5) years. The breakup of the courses is as follows:

- *6 Compulsory Courses (18 Credit Hours)*
- *2 Electives[26] (6 Credit Hours)*
- *1 Thesis (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
MD 5102	Media and Contemporary Culture	143
MD 5104	Research Methodology	143
MD 5207	Media Evolution and Innovation	143
	Spring Semester	
MD 5212	Theories of Visual Culture	144
MD 5112	Media and Post-Colonialism	144
MD 5201	Communication for Social Change	144
	Second Year	
	Fall Semester	
MD 5xxx	Elective-I	225
MD 5xxx	Elective-II	225
MD 5109	Thesis-I	145
	Spring Semester	
MD 5209	Thesis-II	145

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

26 List of Electives is given in Appendix B

4.2.2 Master of Science in Media Studies (MS Media Studies)

Course Name	Media and Contemporary Culture	**Credit Hours**	**3** (3,0)
Course Code	MD 5102	**Prerequisite(s)**	None

Course Description

The course discusses theoretical foundations of contemporary cultural criticism, especially as this relates to aesthetic, social and political practices across media. The topics include: Theories of media and popular culture-Marxism, structuralism, post-structuralism, modernity, and post-modernism. Also, subcultures and youth cultures, the role of media in culture and society, the politics of identity (race, gender, ethnicity, religion, sexuality, class, and nationality), the emergence and effect of cyber culture, globalization and multiculturalism.

Equivalent Course

None

Course Name	Research Methodology	**Credit Hours**	**3** (3,0)
Course Code	MD 5104	**Prerequisite(s)**	None

Course Description

The course introduces students to both qualitative and quantitative methods of research and analysis. The topics include: Designing research (choosing, narrowing, and shaping topics); articulating research questions and hypotheses; conducting literature reviews; quantitative methods (sampling, designing questionnaires, conducting interviews, selecting focus groups, analyzing data); qualitative methods (primary vs. secondary sources, adjudicating contradictory information, assessing bias); textual analysis; historical analysis; productions analysis; audience analysis, and writing research reports.

Equivalent Courses

None

Course Name	Media Evolution and Innovation	**Credit Hours**	**3** (3,0)
Course Code	MD 5207	**Prerequisite(s)**	None

Course Description

The course aims at discussing the emergence, growth, and development of media practices and technologies, and to chart future possibilities. The topics include Birth of media technologies; traditional media content; economic, social and cultural influences; traditional content and technologies; emergence, evolution, and institutionalization of telecommunications technologies; synergy and integration; and ethical implications of developing technologies and future directions.

Equivalent Courses

None

4.2.2 Master of Science in Media Studies (MS Media Studies)

Course Name	Theories of Visual Culture	**Credit Hours**	**3** (3,0)
Course Code	MD 5212	**Prerequisite(s)**	MD 5102

Course Description

This course introduces students to a range of theoretical approaches to defining, analyzing, and categorizing visual texts including, but not limited to, films, photographs, advertisements, television shows, sculpture, graffiti, architecture, paintings, performance, fashion, graphic, and interior design. It covers topics such as theory vs. praxis; defining the visual; the sociological processes of culture; the politics of visual culture; conspicuous consumption; Marxist, feminist, structuralism, and semiological approaches to visual culture; substance vs. style.

Equivalent Courses None

Course Name	Media and Post-Colonialism	**Credit Hours**	**3** (3,0)
Course Code	MD 5112	**Prerequisite(s)**	MD 5102

Course Description

This course discusses theories and practices of media representation as these relate to the formation of post-colonial societies. It covers topics such as theories of post-colonialism; the politics of post-colonial representation; post-modernism and post-colonialism; nationalism, nation building, and identity; media and resistance; ethnicity, indigeneity, and hybridity; language and representation; empire and liberation; alternative media and representations of the local.

Equivalent Courses None

Course Name	Communication for Social Change	**Credit Hours**	**3** (3,0)
Course Code	MD 5201	**Prerequisite(s)**	None

Course Description

The course teaches students how to develop, apply, and coordinate communication strategies that help facilitate interdisciplinary collaboration and social change. The topics include: Models of communication, information ecosystems, change theories, the impact of media concentration and interactions in the Triple Helix model i.e. Public, Private and Academia, conflict management and resolution, media activism, gender and its role in social change, and content diversity and its socio-economic and political impact.

Equivalent Courses None

4.2.2 Master of Science in Media Studies (MS Media Studies)

Course Name	Thesis I & II	**Credit Hours**	**3** (3,0)+ **3** (3,0)
Course Code	MD 5109 & MD 5209	**Prerequisite(s)**	Dept. Permission (At least 6 courses which must include MD 5102 and MD 5104)
Course Description	The course requires students to write a well-researched, well-documented, publishable thesis on a subject of the student's choice that explores any of the areas covered by courses over previous semesters.		
Equivalent Courses	None		

Department of Mechatronics Engineering

5.1 Bachelor of Engineering

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Students enrolled in the Bachelor of Engineering in Mechatronics Engineering (BEME) program, are required to complete 45 courses with a total of 140 credit hours and an Internship, within seven (7) years, to be eligible for BE (Mechatronics) degree. The following is the break-up of the 45 courses:

- *41 Compulsory Courses (125 Credit Hours)*
- *3 Electives[27] (9 Credit Hours)*
- *Final Year Project (6 Credit Hours) (to be completed in 7th & 8th semesters)*

27 List of Electives is given in Appendix B.

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Code	Course Title	Page #
	Third Year	
	Fall Semester	
ME 3501	Engineering Mathematics-V: Numerical Methods	155
ME 3502	Fluid Mechanics	156
ME 3503	Microcontroller-Based Systems	156
ME 3504	Sensors, Actuators and Instrumentation	156
ME 3506	Materials and Manufacturing Processes	157
ME 3507	Theory of Machines	157
	Spring Semester	
ME 3602	Control Systems	157
ME 3603	Engineering Mathematics-VI: Probability and Statistics	158
ME 3605	Power Electronics	158
ME 3606	Machine Design and CAD/CAM	158
ME 4705	Mechatronics System Design	159
ME 1205	Technical Writing Skills	159
	Fourth Year	
	Fall Semester	
ME 4xxx	Elective-I (Engineering)	226
ME 4702	Engineering Economics and Project Management	159
ME 4802	Robotics	160
ME 4704	Mechanical Vibrations	160
ME 4708	Final Design Project I*	161
	*To be continued and final grades will be awarded at the conclusion of 8th Semester.	
	Spring Semester	
ME 4801	Industrial Automation	160
ME 4xxx	Elective-II (Engineering)	226
ME 4xxx	Elective-III (Management Sciences)	226
ME 4703	Heat Transfer	161
ME 4808	Final Design Project II*	161
	*To be continued from 7th semester and final grades will be awarded at the conclusion of 8th	

All courses may not be offered every year. Alternate courses may be substituted as and when required.

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Communication and Presentation Skills	**Credit Hours**	**2** (2,0)
Course Code	ME 1101	**Prerequisite(s)**	None

Course Description

The course is aimed at improving English language communication and presentation skills of students. With a multidimensional approach, the course enables the students to practice the use of English in everyday situations, building upon all four skills: listening, speaking, reading and writing. It prepares them to participate in seminars and discussions and make effective presentations, with an awareness of the audience and effective use of verbal and non-verbal communication. The course addresses the basic English language issues faced by the learners, while also aiming to foster in them, critical skills to develop a concise and clear argument, respond to others' comments and negotiate their own point of view persuasively. The course uses an interactive, participatory methodology, to engage learners' interest and boost their confidence to use English in everyday communication in formal and informal contexts.

Equivalent Course(s) CSC 2101, MD 1122, SS 1116, BIO 1111

Course Name	Electric Circuits	**Credit Hours**	**4** (3,1)
Course Code	ME 1102	**Prerequisite(s)**	None

Course Description

The course aims to explain the working principles of resistors, capacitors and inductors in terms of voltage and current. Ohm's law, Kirchhoff's Current Law (KCL) and Kirchhoff's Voltage Law (KVL) are explained in detail. Each discussion on theory is supplemented with appropriate lab experiment. This course prepares students for more advanced courses in electronic engineering to be followed in subsequent semesters.

Equivalent Course(s) None

Course Name	Engineering Drawing-I	**Credit Hours**	**2** (0,2)
Course Code	ME 1109	**Prerequisite(s)**	None

Course Description

Drawings are means of communication for engineers. During this course this is accomplished through sketching, use of instruments and knowledge of orthographic projection. Initially students are introduced to engineering drawing basics, such as types of lines, lettering, dimensioning, use of pencil and drawing instruments, planning of drawing sheet. Then students are given practice of making engineering drawings of different objects. Furthermore, students are also made to practice to draw orthographic projections in first and third angles. This helps them in understanding the engineering drawings and then making and modifying them efficiently.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Engineering Mathematics-I: Calculus and Analytical Geometry	**Credit Hours**	**3** (3,0)
Course Code	ME 1104	**Prerequisite(s)**	None

Course Description

The course begins with a review of vector algebra and trigonometry; then limits and continuity are introduced. With the knowledge of limits and continuity the students develop the concept of the derivative and its applications. At the end, the students study the anti-derivative of elementary functions and applications of the definite integral in geometry, science, and engineering.

Equivalent Course(s) CSC 1101

Course Name	Introduction to Computer System and Programming	**Credit Hours**	**2** (1,1)
Course Code	ME 1108	**Prerequisite(s)**	None

Course Description

This is the first course in computing for students of mechatronics engineering. It aims to provide students with an understanding of the role computation can play in solving problems. It also aims to help students, to feel justifiably confident of their ability to write small programs that allow them to accomplish useful goals. The class uses the Turbo C programming language. Laboratory sessions introduce students to a variety of software packages that include word processing, spreadsheets, graphics and communications.

Equivalent Course(s) None

Course Name	Engineering Physics	**Credit Hours**	**3** (2,1)
Course Code	ME 1203	**Prerequisite(s)**	None

Course Description

The main objective of this course is to develop an understanding of physical processes which govern the nature. Emphasis is given to certain key branches in physics like mechanics, fluids, heat, electromagnetism, and material/energy properties in a given environment. This constructs a firm base for the courses in future semesters.

Equivalent Course(s) None

Course Name	Islamic Studies	**Credit Hours**	**2** (2,0)
Course Code	ME 1106	**Prerequisite(s)**	None

Course Description

Islamic Studies gives an introduction to basic principles of Islam, followed by topics, such as; *Ibadaat* (Worship), *Amr Bil Maroof wa Nahi anl Munkir* (i.e. commands and prohibition), Islam's concept of knowledge, comparison with science, life history of the Prophet Muhammad (Peace and Blessings of Allah be upon Him), unity of Ummah ; *Kasb-e-Halal* (lawful earning) and obligations of a Muslim. In addition, fundamental human rights and minorities, Islamic society, maintaining identity in a non-Islamic state, Islamic politics, problems faced by Muslims and the status of women in Islam, are also being covered.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Electronic Devices and Circuits	**Credit Hours**	**4** (3,1)
Course Code	ME 1201	**Prerequisite(s)**	ME 1102

Course Description

This course is an introduction to electronic circuits. It explains the basic concepts of semi-conductor diode, its current-voltage relationship and various applications of junction diode, and Bipolar Junction Transistor and Field-Effect Transistor are evolved as two PN-junction devices. In addition, relations of various currents and voltages in these transistors are explained in detail, and effect of temperature on these semiconductor devices is highlighted. A variety of applications of various types of transistors, amplifiers and power supplies are discussed in this course.

Equivalent Course(s) None

Course Name	Engineering Mathematics-II: Linear Algebra and Ordinary Differential Equations (ODES)	**Credit Hours**	**3** (3,0)
Course Code	ME 1202	**Prerequisite(s)**	ME 1104

Course Description

The first half of the course covers topics such as; linear algebra, systems of linear algebraic equations, vector spaces, linear dependence, bases, dimension, matrix algebra, determinants, eigenvalues, and eigenvectors. The second half covers; ordinary differential equations, including solutions to separable and linear first order equations, and higher order linear equations with constant coefficients.

Equivalent Course(s) CSC 2104

Course Name	Engineering Statics	**Credit Hours**	**3** (3,0)
Course Code	ME 1204	**Prerequisite(s)**	None

Course Description

This course provides a basic understanding of the part of mechanics which is concerned with the equilibrium of bodies under the action of forces. It lays the foundation and framework for subsequent courses, namely Engineering Dynamics and Mechanics of Materials. The topics include: basic concepts of mechanics and vectors, free-body diagrams and equilibrium of particles, free-body diagrams and equilibrium of rigid bodies, force systems, analysis of trusses, beams and frames, distributed forces, friction and application of frictional forces.

Equivalent Course(s) None

Course Name	Engineering Workshop	**Credit Hours**	**2** (0,2)
Course Code	ME 1207	**Prerequisite(s)**	None

Course Description

Engineering Workshop course introduces students to various engineering processes in electrical and mechanical workshops. The electrical workshop would further include the hardware and software interfacing and the electro-mechanical project. Whereas, the mechanical workshop would elaborate on the wood working shop, metal work, welding shop, fitting shop and machine shop.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Computer Programming	**Credit Hours**	**3** (2,1)
Course Code	ME 2301	**Prerequisite(s)**	None

Course Description

Computer Programming teaches the basics of C Programming Language. The topics include: C (variable, data type, arithmetic operations), expressions and operators, decisions (conditional statement, flowcharting, if/else structure, logical operators), loops, over flow conditions, properties of while loop, do while loop, switch statements, functions, arrays and their initializations, copying and linear structures.

Equivalent Course(s) None

Course Name	Digital Logic Design	**Credit Hours**	**3** (2,1)
Course Code	ME 2302	**Prerequisite(s)**	None

Course Description

The course teaches theoretical concepts, well-supported through practical work, the systematic synthesis of the applied techniques for the design of practical digital systems. Topics include; introduction to various numbering systems, various design techniques, minimization techniques for designing efficient combinational and sequential logic circuits, basic digital circuit building blocks, such as, decoders, multiplexers, shift registers, flip flops, etc. Modern methods of designing digital circuits. Designing of autonomous and input-controlled counters & shift-registers. Concept of finite state machine.

Equivalent Course(s) None

Course Name	Engineering Dynamics	**Credit Hours**	**3** (3,0)
Course Code	ME 2303	**Prerequisite(s)**	ME 1204

Course Description

During this course, students are explained the concepts of kinematics of particle motion in various coordinate systems as well as relative and constrained motion. This helps in understanding the forces being applied on a system in motion. Students are further exposed to particles kinetics which include; the force mass acceleration, work-energy and impulse momentum. These help students in strengthening concepts related to bodies in motion.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Engineering Mathematics-III: 3-D Geometry and Vector Calculus	**Credit Hours**	**3** (3,0)
Course Code	ME 2304	**Prerequisite(s)**	ME 1104

Course Description

This course is designed to introduce the concepts of vector-valued functions, functions of several variables, partial derivatives, multiple integrals, and vector analysis. Applications to geometry and physics, as well as other real-life problems are particularly emphasized in the course, e.g., surface areas or volumes of 3D objects, gradient or divergence of vector fields, etc.

Equivalent Course(s) None

Course Name	Network Analysis	**Credit Hours**	**3** (3,0)
Course Code	ME 2305	**Prerequisite(s)**	ME 1102

Course Description

This course focuses on the analysis and circuit's response of first and second order circuits by formulation of the differential equation of the circuit and its solutions for DC and AC Forcing functions. The concept of phasors and Laplace transformation are introduced as a tool to solve the circuit equations in Laplace and phasor domains. The course also covers the frequency response of a circuit through sinusoidal analysis.

Equivalent Course(s) None

Course Name	Pakistan Studies	**Credit Hours**	**2** (2,0)
Course Code	ME 2306	**Prerequisite(s)**	None

Course Description

This course is oriented towards developing better understanding of Pakistan with a critical perspective. History, economics, constitutional development, cultural and social integration, as well as the study of the foreign policy form a major part of the course.

Equivalent Course(s) None

Course Name	Data Structures and Object-Oriented Programming	**Credit Hours**	**3** (2,1)
Course Code	ME 2307	**Prerequisite(s)**	ME 2301

Course Description

The course introduces students to the concepts of object-oriented programming like classes, objects, abstraction, polymorphism, encapsulation, inheritance, etc. The course also reinforces students understanding of basic programming principles and fundamentals of procedural programming.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Engineering Drawing-II	**Credit Hours**	**1** (0,1)
Course Code	ME 2309	**Prerequisite(s)**	ME 1109

Course Description

Initially students are introduced with the basic AutoCAD commands and computer-aided-drafting concepts to draw, design, and draft. Emphasis is placed on efficient and accurate drawing techniques incorporating the features, commands, and techniques for creating, editing, and printing 2D production drawings. During the latter part of the course students will create several mechanical CAD drawings following the American Standards Institute (ANSI) and International Standards Organization (ISO) standards.

Equivalent Course(s) None

Course Name	Electronics Circuit Design	**Credit Hours**	**4** (3,1)
Course Code	ME 2401	**Prerequisite(s)**	ME 1201

Course Description

This course contributes to both the engineering aspects and design components. The course has been designed with consideration to single and multi-device sub-circuits, frequency response characteristics, and feedback, stability, efficiency, and IC techniques. It is a prerequisite to senior-level electronic design courses.

Equivalent Course(s) None

Course Name	Electro-Mechanical Systems	**Credit Hours**	**4** (3,1)
Course Code	ME 2402	**Prerequisite(s)**	ME 2305

Course Description

The course topics include; magnetic circuits, transformers, principles of electro-mechanical energy conversion. Faraday's Law, rotating machines, construction and operation of synchronous generators and motors, operation and performance of DC machines, small power AC motors, brush-less DC motors, stepper motors, and servo motors. In addition, sensors and microprocessor technologies are also discussed. The course includes a number of lab experiments to explain the theoretical aspect.

Equivalent Course(s) None

Course Name	Engineering Mathematics-IV: Transformation Techniques	**Credit Hours**	**3** (3,0)
Course Code	ME 2403	**Prerequisite(s)**	ME 1202

Course Description

The course covers the advanced topics in mathematics, applicable to engineering problems. Topics include; complex variable analysis, and Fourier analysis including complex Fourier series, complex Fourier integral, Fourier transforms and discrete Fourier transform.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Strength of Materials	**Credit Hours**	**4** (3,1)
Course Code	ME 2406	**Prerequisite(s)**	ME 1204

Course Description

This course is a foundation to many advanced techniques that allow engineers to design structures, predict failures and understand the physical properties of materials. This course provides basic tools for stress, strain and strength analysis. Furthermore, methods for determining the stresses, strains and deflections produced by applied loads are taught. In summary, engineering design concepts are integrated into the Strength of Materials course.

Equivalent Course(s) None

Course Name	Thermodynamics	**Credit Hours**	**3** (2,1)
Course Code	ME 2405	**Prerequisite(s)**	ME 1203

Course Description

This course gives introduction to basic laws of thermodynamics and control volume/mass analyses, properties and behavior of pure substances, application to thermodynamic systems operating in steady state and transient processes, heat transfer mechanisms, typical power producing cycles and refrigerators. Towards the end of the course, refrigeration, heat pump systems, combustion and fuel cells are also discussed.

Equivalent Course(s) None

Course Name	Engineering Mathematics-V: Numerical Methods	**Credit Hours**	**3** (3,0)
Course Code	ME 3501	**Prerequisite(s)**	ME 1202

Course Description

This course introduces students to a variety of numerical methods and application of these methods to solve a broad range of engineering problems. The course covers fundamental principles regarding types of computational errors, and propagation of errors. The numerical methods include finding zeros of functions, solving systems of linear equations, interpolation and approximation of functions, numerical integration and differentiation, and solving initial value problems of ordinary differential equations.

Equivalent Course(s) None

Course Name	Fluid Mechanics	**Credit Hours**	**4** (3,1)
Course Code	ME 3502	**Prerequisite(s)**	ME 2405

Course Description

This course introduces students to the concepts, principles, laws, observations, and models of fluids at rest and in motion. The basic idea of what fluids are, the study of static fluids, the use of control volumes for fluids in motion, and the uses of length, mass, time and temperature dimensions to greatly simplify the description of fluids are illustrated. During the later part of the course particular attention is paid to application of hydraulics and pneumatics in Mechatronics systems.

Equivalent Course(s) None

Course Name	Microcontroller-Based Systems	**Credit Hours**	**3** (2,1)
Course Code	ME 3503	**Prerequisite(s)**	ME 2301, ME 2302

Course Description

Microcontroller-Based Systems emphasizes on the practical applications of microcontrollers for a variety of products in various fields. It teaches to perform analysis requirement of a given task, making decisions in selecting an appropriate controller, designing, implementing and fully testing the hardware and software part of the product. Furthermore, the course covers programming the microcontroller using assembly code instructions, programming the microcontroller using C/C++ in integrated development environment. The course is heavily based on practical work.

Equivalent Course(s) None

Course Name	Sensors, Actuators and Instrumentation	**Credit Hours**	**4** (3,1)
Course Code	ME 3504	**Prerequisite(s)**	ME 2402

Course Description

This course begins with an intensive review of passive circuit analysis, active semiconductor devices, analog circuits with a focus on the operational amplifier, and digital devices. Then, the response of electromechanical systems is studied as a basis for the proper selection and/or design of a measurement system. The next topic treats the conversion from analog to digital signals and interfacing the analog world to computers and controllers. The course concludes with the topic about theory and applications of sensors and actuators.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Materials and Manufacturing Processes	**Credit Hours**	**3** (3,0)
Course Code	ME 3506	**Prerequisite(s)**	None

Course Description

This course introduces student to the structures and properties of metals, ceramics, polymers, and composites, with an understanding of the processing and design limitations of contemporary materials, as well as to new classes of materials being developed to meet the ever expanding range of material requirements. In the later part of the course, students are introduced to different manufacturing processes used in the industry.

Equivalent Course(s) None

Course Name	Theory of Machines	**Credit Hours**	**3** (2,1)
Course Code	ME 3507	**Prerequisite(s)**	ME 2303

Course Description

The objective of the course is to introduce the preliminary concepts of mechanisms and to present methods of analysis for the motion and force transmission in mechanisms. This course enables students to understand various independent technical approaches that exist in the field of mechanisms, kinematics and machine dynamics.

Equivalent Course(s) None

Course Name	Control Systems	**Credit Hours**	**4** (3,1)
Course Code	ME 3602	**Prerequisite(s)**	None

Course Description

In this course students, initially are taught how to model linear time-invariant electrical, mechanical, and electro-mechanical systems. Then, students are taught to analyze the behavior of the above-mentioned systems in time and frequency domains and recognize the performance characteristics of a control system such as stability, damping, phase and gain margins. Subsequently, the students learn to analyze the performance of proportional, derivative and integral feedback controllers and design simple control systems that satisfy given criteria. Finally, the students are introduced to modern state-space-based control system analysis and design techniques. The students also use industry standard software tools such as Matlab to analyze, design, and evaluate control systems.

Equivalent Course(s) None

Course Name	Engineering Mathematics-VI: Probability and Statistics	**Credit Hours**	**3** (3,0)
Course Code	ME 3603	**Prerequisite(s)**	ME 1104

Course Description

Engineering Mathematics-VI covers data and types, sampling techniques, group and ungroup data, measure of dispersion, mathematical and statistical functions, multiple linear regressions, laws of probability, probability distribution-binomial, probability distribution-normal, probability distribution-poisson, steps involved in hypothesis analysis, quality control, control chart, acceptance sampling, errors and rectification, goodness of fit, Chi-square test and curve fitting.

Equivalent Course(s) CSC 2105

Course Name	Power Electronics	**Credit Hours**	**4** (3,1)
Course Code	ME 3605	**Prerequisite(s)**	ME 2401

Course Description

The objective of the course is to expose the students to electric power conversion i.e. from AC to DC and DC to AC. Special semi conductor devices like Thyristors, Silicon controlled rectifiers etc. are fully explained. The course also covers choppers, regulators and phase-controlled circuits. The course is supplemented with experiments to give students hands-on-practice for developing a thorough understanding of the subject.

Equivalent Course(s) None

Course Name	Machine Design and CAD/CAM	**Credit Hours**	**3** (3,0)
Course Code	ME 3606	**Prerequisite(s)**	ME 2303

Course Description

This course aims to synergize forces, moments, torques, stress and strength information to develop ability to analyze, design and/or select machine elements - with attention to safety, reliability, and societal and fiscal aspects. Finally, the course prepares the students to design static and dynamic machine elements such as shafts, springs, screws, bearings and gears. Lab component of this course is taught with a combination of theory and practice. Alongside with the theory, the course requires a student to undertake assignments using major commercial software. Throughout the course intensive hand-on training on leading commercial CAD/CAM packages is provided to enable students to develop the knowledge of the complete concept from 3D Solid Modeling.

Equivalent Course(s) None

5.1.1 Bachelor of Engineering in Mechatronics Engineering (BEME)

Course Name	Mechatronics System Design	**Credit Hours**	**4** (3,1)
Course Code	ME 4705	**Prerequisite(s)**	ME 2402

Course Description

This course provides the essentials of digital control as applied to high-speed mechanical systems. The approach is both theoretical and practical in providing the optimal software and/or hardware control solution. Project work will include mechatronics integration of mechanical, electrical, microprocessor, micro-controller and software components including programming within engineering systems.

Equivalent Course(s) None

Course Name	Technical Writing Skills	**Credit Hours**	**2** (2,0)
Course Code	ME 1205	**Prerequisite(s)**	None

Course Description

This course focuses on the use of English in professional contexts. The course aims to develop interpersonal communication skills in a dynamic, digitalized and globally connected business world. This interactive course will create an awareness in the students about the basics of communication in formal contexts, allows them to analyze the mechanics of technical business writing with the use of specific registers, and experiment with different types of letters, memos, reports, proposals, presentations, and manuals to communicate complex information with clarity, conciseness, and force to meet the basic business communication needs of working professionals.

Equivalent Course(s) CSC 1102, MD 1222, SS 2316, BIO 1211

Course Name	Engineering Economics and Project Management	**Credit Hours**	**3** (3,0)
Course Code	ME 4702	**Prerequisite(s)**	None

Course Description

Engineering Economics and Project Management covers; basic economic concepts, such as types of costs, cash flow diagrams, market mechanism, equivalence, project feasibility analysis, equity versus debt financing, depreciation accounting, consumer demand and elasticity, and cost benefit analysis. Further, general project management skills and techniques are also covered.

Equivalent Course(s) None

Course Name	Robotics	**Credit Hours**	**4** (3,1)
Course Code	ME 4802	**Prerequisite(s)**	ME 2303

Course Description

During this course a detailed study of robotics is undertaken with particular emphasis on homogeneous transformations, kinematics, force and velocity transformation, end effectors and the interpretation of sensory information. The course is designed to explore the current and future use of automation technology in industry and everyday use. The students will receive a comprehensive overview of robotic systems and the subsystems that comprise them.

Equivalent Course(s) None

Course Name	Mechanical Vibrations	**Credit Hours**	**2** (2,0)
Course Code	ME 4704	**Prerequisite(s)**	ME 2303

Course Description

Students are introduced to the concepts of free vibration of a system, harmonic motion, viscous damping, stiffness, and system modeling and vibration measurements. Students will become familiar with the response of various systems such as single degree, multi and infinite degrees of freedom to various inputs (harmonic excitation, impulse excitation and base excitation). Furthermore, design of systems for vibration suppression and machine condition monitoring using vibration and acoustics emission is introduced. In summary, emphasis is placed on developing a thorough understanding of how the changes in system parameters affect the system response.

Equivalent Course(s) None

Course Name	Industrial Automation	**Credit Hours**	**4** (3,1)
Course Code	ME 4801	**Prerequisite(s)**	ME 3503

Course Description

This course introduces the student to practical methods of automatic control of machines, processes and systems. This course primarily covers manufacturing automation with particular reference to CNC and PLC. The course also includes familiarization with PLCs, covering programming of some popular PLCs used in the industry. Towards the end of the course, an introduction to industrial robots and their application is covered.

Equivalent Course(s) None

Course Name	Heat Transfer	**Credit Hours**	**3** (2,1)
Course Code	ME 4703	**Prerequisite(s)**	ME 3502

Course Description

This course introduces the basic concepts of heat transfer, in conduction, convection, and radiation. It also deals with extended surfaces to increase heat transfer and its applications in heat sinks and in heat exchangers. The effect of heat transfer on cooling and heating is also discussed.

Equivalent Course(s) None

Course Name	Final Year Project I & II	**Credit Hours**	**6** (0,6)=(0,3)+(0,3)
Course Code	ME 4708 and ME 4808	**Prerequisite(s)**	None

Course Description

Final Year Project is a group project requiring designing of a Mechatronics product or application. Each group consists of two to four students the project is stretched over two semesters (i.e. the seventh and the eighth). A midterm evaluation is carried out in the summer semester in the presence of the department's faculty. Towards the end of the eighth semester, each group is required to submit a report according to the university's report format and present the final project.

Equivalent Course(s) None

Department of Biosciences

6.1 Bachelor of Science

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Students enrolled in Bachelor of Science in Biosciences (BS-Biosciences) program are required to complete 44 courses with a minimum of 138 credit hours, within seven (7) years to become eligible for obtaining the BS degree in Biosciences. The break-up of 44 courses is as follows:

- *40 Compulsory Courses (120 Credit Hours)*
- *4 Electives[28] (12 Credit Hours)*
- *1 Research Report (6 Credit Hours)*

28 List of Electives is given in Appendix B.

6.1. Bachelor of Science in Biosciences (BS-Biosciences)

Course Code	Course Title	Page #
	Third Year	
	Fall Semester	
BIO 2302	Biotechnology	173
BIO 2402	Bioinformatics	173
BIO 3503	Genetics	173
BIO 3505	Pharmacology-I	174
BIO 3509	Epidemiology	174
	Spring Semester	
BIO 2304	Nutrition and Dietetics	174
BIO 2403	Environmental Science	175
BIO 3605	Pharmacology-II	175
BIO 3606	Advanced Biotechnology	175
BIO 4801	Bioethics	176
BIO 4xxx	Elective-I	227
	Fourth Year	
	Fall Semester	
BIO 3601	Agricultural Science	176
BIO 3602	Human Anatomy	176
BIO 4702	Introduction to Pathology	177
BIO 4703	Research Methodology	177
BIO 4xxx	Elective-II	227
BIO 4xxx	Elective-III	227
	Spring Semester	
BIO 4701	Business Management	177
BIO 4704	Toxicology	178
BIO 4802	Biophysics	178
BIO 4804	Research Report	178
BIO 4xxx	Elective-IV	227

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	English for General Purposes	**Credit Hours**	**3** (3,0)
Course Code	BIO 1111	**Prerequisite(s)**	None

Course Description

The course is aimed at improving English language communication and presentation skills of students. With a multidimensional approach, the course enables the students to practice the use of English in everyday situations, building upon all four skills: listening, speaking, reading and writing. It prepares them to participate in seminars and discussions and make effective presentations, with an awareness of the audience and effective use of verbal and non-verbal communication. The course addresses the basic English language issues faced by the learners, while also aiming to foster in them, critical skills to develop a concise and clear argument, respond to others' comments and negotiate their own point of view persuasively. The course uses an interactive, participatory methodology, to engage learners' interest and boost their confidence to use English in everyday communication in formal and informal contexts.

Equivalent Course(s)

CSC 1102, BA 1105, SS 1116, MD 1122, BIO 1103

Course Name	Fundamental Mathematics	**Credit Hours**	**3** (3,0)
Course Code	BIO 1107	**Prerequisite(s)**	None

Course Description

The course topics include:

Preliminaries: Real-number system, complex numbers, introduction to sets, set operations, functions, types of functions.

Matrices: Introduction to matrices, types, matrix inverse, determinants, system of linear equations, Cramer's rule.

Quadratic Equations: Solution of quadratic equations, qualitative analysis of roots of a quadratic equations, equations reducible to quadratic equations, cube roots of unity, relation between roots and coefficients of quadratic equations.

Sequences and Series: Arithmetic progression, geometric progression, harmonic progression.

Binomial Theorem: Introduction to mathematical induction, binomial theorem with rational and irrational indices.

Trigonometry: Fundamentals of trigonometry and trigonometric identities.

Equivalent Course(s)

BA 1204

6.1. Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Physiology-I	**Credit Hours**	**3** (2,1)
Course Code	BIO 1206	**Prerequisite(s)**	None

Course Description

This course is designed to provide students with an understanding of the function and regulation of the human body and physiological integration of the organ system. The course topics include; basic principle of physiology level of chemical and physiological organization of human, cell physiology, physiology blood and blood cells cardiovascular and circulatory system. Physiology of respiratory system, mechanism of oxygen transport into the cells and physiology of renal system.

Equivalent Course(s) None

Course Name	Introduction to Microbiology	**Credit Hours**	**3** (2,1)
Course Code	BIO 1209	**Prerequisite(s)**	None

Course Description

The course topics include; Fundamentals of Microbiology, Microorganisms and their respective place in the living world, differentiation between prokaryotic and eukaryotic cells, historical development of Microbiology and its scope. Microscopy, morphology, bacterial taxonomy and nomenclature, other topics include growth, nutrition (physical and nutritional requirement and nutritional types, sources of energy, C, N, H, O, S, P, H2O, trace elements, growth factors) and reproduction, general methods of studying microorganisms, including cultivation, isolation, purification and characterization, control of microorganisms by physical and chemical methods. Chemotherapeutic agents and antibiotics, modes of action of antibiotics on microorganisms, basic properties of fungi, protozoa and algae, and a brief introduction to structure and propagation of viruses and bacteriophages.

Equivalent Course(s) None

Course Name	Biochemistry-I	**Credit Hours**	**3** (2,1)
Course Code	BIO 2301	**Prerequisite(s)**	None

Course Description

The course topics include; Water, pH, buffers, diffusion, osmosis, surface tension, carbohydrates, amino acids, proteins, structure and function, molecular structure of proteins, relationship between the structure and function of proteins, relationship of primary structure and function of protein, enzymes, the Michaelis-Menten equation, enzyme inhibitors, reversible enzyme inhibition, irreversible enzyme inhibition. Lipids, vitamins and nucleic acids.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	English for Academic Purposes	**Credit Hours**	**3** (3,0)
Course Code	BIO 1211	**Prerequisite(s)**	BIO 1111

Course Description

The course is designed to improve academic English language and study skills of students. The course follows a multidimensional approach based on the four language skills with a specific focus on reading and writing skills that are required in research-based study at university level. The course includes listening and note taking skills, library and internet use for locating and evaluating research articles. In addition, the course seeks to enable the students to of speed read, skim, scan and infer from written text. The course specifically focuses on enabling the students to experiment with complex grammatical forms, sentence structures and logical paragraph development, to present coherent, cohesive and effective arguments clearly in research-based writing according to the requirements of their specific discipline.

Equivalent Course(s) BA 1206, CSC 2101, BIO 1202

Course Name	Advanced Microbiology	**Credit Hours**	**3** (2,1)
Course Code	BIO 1207	**Prerequisite(s)**	BIO 1209

Course Description

The course topics include; bacterial DNA replication, transcription, translation, mutation and variation, introduction to the genetical intermixing of bacteria including transformation, transduction and conjugation. Microbiology of water and wastewaters is studied as a source of infection and methods of water purification, along with Methods of sewage treatment and disposal. The course introduction to food and dairy microbiology, include methods of food preservation, food intoxication and food-infection. Microbiology of soil with particular reference to nitrogen cycle and microbiology of air. Pathogenesis of microorganism and molecular mechanism of pathogenesis and bacterial, fungal and viral diseases are also covered.

Equivalent Course(s) None

Course Name	Statistics	**Credit Hours**	**3** (3,0)
Course Code	BIO 1208	**Prerequisite(s)**	BIO 1107

Course Description

The course topics include; Definition of statistics, characteristics, importance and limitations, population and samples, frequency distribution and probabilities, formation of frequency table from raw data, histograms, applications of probabilities to simple events, measures of central tendencies and dispersion, arithmetic mean, median, mode, range, variance and standard deviation, standard error of the mean, mean deviation, semi interquartile range, standard distribution (binomial, poison and normal distributions, properties and application, normality), test of significance (t-test, X^2-test, F-test, L.S.D. test, multiple range test), design of experiment, brief account of correlation and regression, and computer based statistical software applications.

Equivalent Course(s) CSC 2105, BA 3605, BA 5405

6.1. Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Physiology-II	**Credit Hours**	**3** (2,1)
Course Code	BIO 2305	**Prerequisite(s)**	BIO 1206

Course Description

This course will cover physiology, gastrointestinal system, central nervous system, autonomic nervous system, peripheral nervous system and special senses which include sense of vision, sense of hearing, sense of pain, sense of taste and sense of smell.

Equivalent Course(s) None

Course Name	Biochemistry-II	**Credit Hours**	**3** (2,1)
Course Code	BIO 2401	**Prerequisite(s)**	BIO 2301, BIO 1206

Course Description

The course topics include, metabolism, metabolic pathways, major pathways in cells, thermodynamics and metabolism. The concept of oxidation electron transport chain and oxidative phosphorylation. Carbohydrate metabolism, lipids metabolism, amino acid metabolism, nucleotide metabolism, introduction to molecular biology, and introduction to endocrinology.

Equivalent Course(s) None

Course Name	Immunology	**Credit Hours**	**3** (2,1)
Course Code	BIO 3504	**Prerequisite(s)**	None

Course Description

The course topics include; introduction: chronological development and scope of immunology. Immunity and immune responses: Definitions and types (specific and non specific). Humoral and cellular immunity. Complement system. Cells and tissues of immune system. The antigens: structure (simple and complex molecules, proteins and polysaccharides) and immunogenicity. Immunoglobulins: structure and function; classes, subclasses, types and subtypes; immunoglobulin genetics. Immune response to an antigen. Introduction to antigen-antibody reactions: methods for detecting antigens and antibodies (agglutination, precipitation, complement fixation, EIA, etc.). HLA & MHC and its role in immune response, disease and its significance in tissue transplantation. Immunoregulation and tolerance, cancer immunology, hypersensitivity reactions, autoimmune diseases and immunodeficiencies. Immunization (methods of immunization, vaccines and adjuvants).

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Cell Biology	**Credit Hours**	**3** (2,1)
Course Code	BIO 1101	**Prerequisite(s)**	None

Course Description

The course topics include: Cell theory, structure, chemical constituents of cell and cell organelles and their functions, separation of cell organelles, cell membrane, its molecular organization and functional role. The concept of the unit membrane, the fluid mosaic model, membrane receptors and transport mechanisms, endoplasmic reticulum, lysosome, micro-bodies, mitochondrial ultra-structure and function, chloroplast ultra-structure and the mechanism of photosynthesis. Cell movements, structure and function of cytoskeleton, centriole, cilia and flagella, the mitotic apparatus. The nucleus, structure and function of chromosomes, and the cell cycle. Fundamentals of Eukaryotic Gene Expression, and reproduction in Eukaryotic cell.

Equivalent Course(s) None

Course Name	Introduction to Computing	**Credit Hours**	**3** (2,1)
Course Code	BIO 1104	**Prerequisite(s)**	None

Course Description

The course topics include; basic computing hardware (input, output, processing and storage devices) and software classification with important historical events; software applications using office automation tools (Word Processor, Spread Sheet, Presentation Software); effective use of internet/intranet; introduction to software/web programming and development, computer networks, information technology within the broader domain of computing, and social issues of computing.

Equivalent Course(s) CSC 1104, BA 1108, BA 1103

Course Name	Islamiat and Pakistan Studies/Humanities	**Credit Hours**	**3** (3,0)
Course Code	BIO 2303	**Prerequisite(s)**	None

Course Description

Islamiat: The course topics include; Introduction to Quranic Studies, study of selected text of the Holy Quran, Seerat of Holy Prophet (S.A.W), introduction to Sunnah, introduction to Islamic law and jurisprudence, Islamic culture and civilization, Islam and science, and the social system of Islam.

Pakistan Studies: Topics include; historical perspective of the Indo-Pak subcontinent; government and politics in Pakistan and contemporary Pakistan.

Humanities: Topics include; meaning and scope of ethics, relation of ethics with: (a) religion (b) science (c) law, historical development of morality, instinctive moral life, customary morality, reflective morality, moral ethics, and society.

Equivalent Course(s) BA 1106, CSC 1105, MD 2402, SS 1109

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Animal and Plant Tissue Culture	**Credit Hours**	**3** (2,1)
Course Code	BIO 2309	**Prerequisite(s)**	None

Course Description

The course topics include; Introduction and history of plant tissue culture; design of typical tissue-culture laboratory, basic media and their components. Culture initiation; explants; type of explants, preparation of explant and their sterilization. Callus culture, cell culture, and single cell culture. Synseeds or synthetic seeds production. Somaclonal variation; problems and benefits. Protoplast culture and Somatic hybridization. Somatic Embryo Production (Somatic Embryogeneis); Principles, technology of automation and the application. Production of natural products by plant cell, tissue and organ culture. Introduction to animal tissue culture, history and application of cell and tissue culture, different types of cell culture, Isolation of cells for culture, factors effecting the growth of cultured cell, contact inhibition, subculturing, establishment of cell line, cryopreservation, Characterization and validation.

Equivalent Course(s) None

Course Name	Lab Management	**Credit Hours**	**3** (3,0)
Course Code	BIO 2404	**Prerequisite(s)**	BIO 1209

Course Description

The course topics include; Introduction-Laboratory Quality Management System, Basic Principles of Biosafety, Clinical Laboratory Regulation, Quality Control, Laboratory Safety, Basic Safe Use of Equipment and Quality Assurance, Basic Elements of Biosafety Management Program, Packaging and Shipment of Biological Material, Animal Biosafety Considerations, Hazardous Material Spill and Preparedness and Response, Hazards of Biological Lab, Waste Disposal Laboratory Accreditation and Audit, Efficiency and Effectiveness, Health Safety and Welfare of the Workforce, Work Safety Legislation, Hazards of the Work Place, Risk Assessment, Safety Policies, and Safety Audit and Inspection.

Equivalent Course(s) None

Course Name	Hematology	**Credit Hours**	**3** (2,1)
Course Code	BIO 2405	**Prerequisite(s)**	BIO 2305, BIO 1206

Course Description

The course topics include; ABO and Rhesus blood group system, types of blood cells and their functions, formation and maturation of blood cells, general principles and iron metabolism, hematological disorders, hereditary spherocytosis, anaemia, types of anaemia, neutropenia, Hodgkin's disease, idiopathic and thrombotic purpura, thalassemia and its types, hematology laboratory procedures, clotting mechanisms and disorders, and detection of coagulation disorders.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Psychology	**Credit Hours**	**3** (3,0)
Course Code	BIO 2306	**Prerequisite(s)**	None

Course Description

The course topics include why study psychology, nature and application of psychology with special reference to Pakistan, schools of psychology, methods of psychology, biological basis of behavior and sensation, perception and attention. It helps distinguish between the major perspectives on human thought and behavior and appreciate the variety of ways psychological data are gathered and evaluated. The course also entails gaining insight into human behavior and into one's own personality or personal relationships, exploring the ways that psychological theories are used to describe, understand, predict, and control or modify behavior, motives, emotions, learning, memory and thinking, impact of behavior on organization, how do the tools of psychology improve work output, social medicine, and social evils.

Equivalent Course(s) SS 2306, BA 2312

Course Name	Genetic Engineering	**Credit Hours**	**3** (2,1)
Course Code	BIO 2406	**Prerequisite(s)**	None

Course Description

The course topics include; an outline of DNA cloning experiment, cloning vectors including plasmids, bacteriophages, cosmids YAC vectors, shuttle and expression vectors, tumor inducing (TI) plasmids, and DNA libraries, screening methods for gene libraries. Southern and Northern blotting Human genome project, are included in the course, along with stem cells and therapeutic cloning and social considerations.

Equivalent Course(s) None

Course Name	Basic Endocrinology	**Credit Hours**	**3** (3,0)
Course Code	BIO 2407	**Prerequisite(s)**	BIO 1206, BIO 2305

Course Description

The course topics include; hormones and chemical signals, receptors, basic principle of endocrine physiology, synthesis, secretion and mode of action of various hormones, hormonal control of metabolism, hypothalamic and pituitary hormones, thyroid glands and its hormones; adrenal glands and its hormones, calcium hemostasis, hormonal assays, and hormonal control of reproduction in males and females.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Neurochemistry	**Credit Hours**	**3** (3,0)
Course Code	BIO 3604	**Prerequisite(s)**	BIO 2301, BIO 1206 BIO 2305

Course Description

The course topics include; organization of nervous system, sympathetic and parasympathetic nervous system, motor nervous system, brain cells, structure of neuron, glial cells and its type, blood brain barrier, signaling in the brain, action potential, resting membrane potential, synapse, synaptic events, receptors in the brain, signal transduction, protein phosphorylation, G-protein, excitatory and inhibitory neurotransmitters and their function, role of neurotransmitter in cognitive functions, behaviors, psychotic disorders, and diseases associated with the malfunctioning of these neurotransmitters.

Equivalent Course(s) None

Course Name	Molecular Biology	**Credit Hours**	**3** (2,1)
Course Code	BIO 4803	**Prerequisite(s)**	BIO 1209, BIO 1101

Course Description

The course topics include; overview of Molecular Biology, logic of Molecular Biology, types and functions of various DNA and RNA polymerases, types and functions of Endonucleases and Exonucleases, Plasmid, Vectors types and functions, transfer of specific genetic material in host and its expression, Molecular techniques for Gene Amplification, techniques for DNA sequencing, techniques for identification of Genetic disorders and infectious diseases e.g. HBV, HCV, HAV, HIV, Tuberculosis, Typhoid, etc.

Equivalent Course(s) None

Course Name	English for Professional Purposes	**Credit Hours**	**3** (3,0)
Course Code	BIO 2411	**Prerequisite(s)**	BIO 1111, BIO 1211

Course Description

This technical and business writing course focuses on the use of English in professional contexts. The course aims to develop interpersonal communication skills in a dynamic, digitalized and globally connected business world. This interactive course will create an awareness in the students about the basics of communication in formal contexts, allows them to analyze the mechanics of technical business writing with the use of specific registers, and experiment with different types of letters, memos, reports, proposals, presentations, and manuals to communicate complex information with clarity, conciseness, and force to meet the basic business communication needs of working professionals.

Equivalent Course(s) CSC 1205

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Biotechnology	**Credit Hours**	**3** (2,1)
Course Code	BIO 2302	**Prerequisite(s)**	BIO 4803, BIO 2309

Course Description

The course topics include: history, importance, screening and selection of microorganisms of industrial importance, development and maintenance of pure cultures, microbial growth dynamics, effect of environments on microbial activity, culture preservation and maintenance, strain improvement, screening, enrichment, protoplast fusion, gene cloning, inoculum, development, size and physiological state, mixed cultures and substrate system, tissue culture, nano-biotechnology, principles of methods and their application in industry and agricultural, biomedical, and environmental biotechnology.

Equivalent Course(s) None

Course Name	Bioinformatics	**Credit Hours**	**3** (2,1)
Course Code	BIO 2402	**Prerequisite(s)**	BIO 1104

Course Description

The course topics include; bioinformatics approach to study molecular to organism level of biological hierarchical structure, application of computational tools to the analysis of genome and their gene products, protein structure, classification, mechanism of protein folding and folding pathways and role of chaperones in protein folding, experimental techniques for characterizing membrane, introduction to sequence databases, comparing sequences against sequence databases, predicting protein coding and non coding regions. Additional topics include; prediction of protein structure from sequencing data, phylogenetic analysis, genome sequencing projects, bioinformatics, and genome analysis.

Equivalent Course(s) CSC 4707

Course Name	Genetics	**Credit Hours**	**3** (2,1)
Course Code	BIO 3503	**Prerequisite(s)**	BIO 4803

Course Description

The course topics include; Mendelian genetics, principle of segregation, symbols and terminology, monohybrid crosses, dominance, recessiveness, codominance, semidominance, principle of independent assortment, dihybrid ratios, trihybrid ratios, gene interaction, epistasis, and multiple alleles. ABO blood type alleles in humans, Rh factor alleles in humans, probability in Mendetion inheritance, chi-square, structure of chromosomes and genes, DNA as storage of genetic information, Friedrich Miescher Experiment, Avery, Macleod and McCarty experiment, Hershey and Chase experiment, Watson and Crick DNA model, sex determination, identification of sex chromosomes, environmental factors and sex determination, linkage and crossing over.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Pharmacology-I	**Credit Hours**	**3** (2,1)
Course Code	BIO 3505	**Prerequisite(s)**	BIO 1206, BIO 2305

Course Description

The course topics include; introduction, history of pharmacology and its classification, drugs and their sources, routes of drugs administration, advantages and disadvantages of enteral routes, advantages and disadvantages of parenteral routes, advantages and disadvantages of topical routes, pharmacokinetics, drug solubility and passage of drugs across the body membranes, plasma concentration of drugs and various factors affecting it (absorption and factors influencing the rate of absorption, GIT and other routes) of drugs, distribution and factors influencing the rate of distribution of drugs, biotransformation and factors influencing the rate of biotransformation of drugs, excretion, channels of excretion and factors influencing the rate of excretion of drugs, definition of bioavailability and bioequivalence, therapeutic index, plasma half life (t½), dose-response curve, area under curve, volume of distribution, pharmaco dynamics, drug receptors and theories, mechanisms of drug action, specificity of drug action and factors modifying the action and dosage of drugs.

Equivalent Course(s) None

Course Name	Epidemiology	**Credit Hours**	**3** (3,0)
Course Code	BIO 3509	**Prerequisite(s)**	None

Course Description

The course topics include; Dynamics of disease transmission, measures of disease impact, disease surveillance, validity and reliability of diagnostic tests, natural history of disease, cohort studies and case controls with other design, risk and association, bias with cofounding and interaction, genetic and environmental factors in disease causation, epidemiology to evaluate health services with screening programs and public policy, ethical and professional issues in epidemiology.

Equivalent Course(s) None

Course Name	Nutrition and Dietetics	**Credit Hours**	**3** (3,0)
Course Code	BIO 2304	**Prerequisite(s)**	BIO 2301, BIO 1206

Course Description

The course topics include; what is and why study nutrition and dietetics, role of nutrition and dietetics in health and how it helps in health, energy and protein, carbohydrates and fats, water soluble vitamin, fat soluble vitamins, minerals RDA/dietary guidelines, nutrition in pregnancy and lactation, nutrition in the growing years, nutrition in adult and elderly, nutrition problem in Pakistan, nutritional assessment, principle of diet therapy in patients, diet in body weight control, diabetes mellitus, hypertension, cardiovascular disease, cancer, osteoporosis, renal disease and food service management in hospitals, and screening of deficiencies.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Environmental Science	**Credit Hours**	**3** (3,0)
Course Code	BIO 2403	**Prerequisite(s)**	None

Course Description

The course topics include; productivity and biogeochemical cycles, community structure and organization, environmental pollution, sustainable development; and economic importance of microbes, plants and animals, microbial techniques for pollution control, role of microorganisms for the production of food and fodder products from agricultural and forestry wastes, biological and chemical pesticides, their advantages and disadvantages, microbial degradation of toxic and poorly degradable (recalcitrant) compounds, bioremediation of environment contaminated with wood preservatives, petroleum products, hydrocarbons, fuels and industrial wastes, bioaccumulation of heavy metals and phytoremediation, applications of recombinant microorganisms in reducing environmental pollution, and microbes as a tool for the assessments of risks associated with the environment.

Equivalent Course(s) None

Course Name	Pharmacology-II	**Credit Hours**	**3** (2,1)
Course Code	BIO 3605	**Prerequisite(s)**	BIO 3505

Course Description

The course topics include; drugs acting on central nervous systems–depressants, hypnotic and sedatives and analgesics (narcotic analgesics and opioid antagonists, analgesic, antipyretic and anti-inflammatory drugs, chemotherapy, anti-microbials, sulphonamides, anti-virals, anti-protozoals treatment of malaria and treatment of amebiasis), anti-fungals, anthelmintics, penicillins, cephalosporins, aminoglycosides, tetracyclines, chloramphenicol, macrolides, quinolones and miscellaneous anti-biotics.

Equivalent Course(s) None

Course Name	Advanced Biotechnology	**Credit Hours**	**3** (2,1)
Course Code	BIO 3606	**Prerequisite(s)**	BIO 2302

Course Description

The course topics include; advances in vaccine development, recombinant products expression and transgenic, bioreactor design, introduction to factors affecting bioreactor design, description of a typical aseptic bioreactor, bioreactor configurations and scale-up of bioreactor system, design of sterilization systems, oxygen mass transfer and heat transfer in bioreactor systems, fermentation technology, product recovery, waste treatment and safety, biosensors (applications of biosensors, transducer technology, principles of biosensors), recombinant protein production, general aspects of heterologous protein expression, bacterial expression systems-escherichia coliand bacillus subtilis, saccharomyces cerevisiaeas a system for expression of heterologous proteins, expression in non-saccharomycesyeast species and filamentous fungi, enzymes and industry, extremozymes, enzyme evolution, and microbial productions of pharmaceuticals, diagnostic proteins, vaccines, microbial toxins and insecticides.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Bioethics	**Credit Hours**	**3** (3,0)
Course Code	BIO 4801	**Prerequisite(s)**	None

Course Description

The course topics include; why study Bioethics, Introduction (Definition, branches, Oaths & laws relating to Medical Profession), Ethical Issues in Organ transplantation & artificial insemination and Assisted Reproductive Technology (ART), Ordinance/Laws pertinent Gender sensitivity/women issues, such as: Hadood Ordinance, Swara + Vanni, Karo-Kari, Taboos against divorced women/widow, Female feticide, Physical violence against women, Fatal/lethal burns to married/unmarried women, Assessment process and intervention strategies by medical professionals, Medical negligence and medical malpractice, Patients' rights, Consent to Medical Examination and Treatment, Global ethical issues, Other ethical issues, such as: Child abuse and molestation, The practice of alternate medicine, Quackery, Pakistan ethical issues verses global ethical issues, Religious perspective (commonality), Ethical dilemmas at workplace, Flesh trade, Child labor, Myths and ethics.

Equivalent Course(s) None

Course Name	Agricultural Science	**Credit Hours**	**3** (3,0)
Course Code	BIO 3601	**Prerequisite(s)**	BIO 2406, BIO 2302

Course Description

The course topics include; Agricultural systems (definitions, history, domestication), the concepts of plant molecular markers, historical background of tissue culture, requirements for in-vitro cultures, role of Phyto-hormones in somatic embryogenesis, Somaclonal variations as breeding tool, Somatic Hybridization, commercial application and issues related to tissue culture, plant transformation, gene gun method of transformation, Agrobacterium-mediated transformation, PEG mediated transformation, field evaluation and commercialization, transgenic crops for herbicide, biotic and abiotic stress resistance, introduction to bio fertilizers, biosafety concerns and bioethics on GM crops, and ethical issues in sustainable agriculture and agricultural research.

Equivalent Course(s) None

Course Name	Human Anatomy	**Credit Hours**	**3** (3,0)
Course Code	BIO 3602	**Prerequisite(s)**	BIO 1206, BIO 2305

Course Description

The course topics include; introduction to human body, digestive system including; liver, pancreas, gall bladder and spleen, excretory system, respiratory system, and the sense organs; taste, smell, ear, eyes and their histology cells, tissues, integument system, upper limb, lower limb, cardiothoracic region, muscular system, and cardiovascular system.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Introduction to Pathology	**Credit Hours**	**3** (3,0)
Course Code	BIO 4702	**Prerequisite(s)**	BIO 1206, BIO 2305 BIO 3504

Course Description

The course topics include; cellular injury and necrosis, cellular adaptations, inflammation, infectious disease, vascular disorders, hemostasis and thrombosis, immunopathology, environmental pathology, cardiovascular disease, pulmonary disease, renal disease, endocrine disease, bone and joint disease, gastrointestinal tract disease, hematopathology-anemia, hematopathology, liver and biliary tract disease, placental disease, breast disease and neuropathology.

Equivalent Course(s) None

Course Name	Research Methodology	**Credit Hours**	**3** (3,0)
Course Code	BIO 4703	**Prerequisite(s)**	BIO 4801, BIO 2404

Course Description

The course topics include; problem identification, problem statement, objectives, literature review and referencing, conceptual framework/hypotheses, planning, methods and procedures, presenting professional papers, introduction to data collection and analysis, statistical measures, hypothesis testing, linear regression and analysis of variance in application oriented manner, data collection methods using various instruments, analysis of experimental and quasi-experimental methods, and presentation of research findings.

Equivalent Course(s) CSC 5105

Course Name	Business Management	**Credit Hours**	**3** (3,0)
Course Code	BIO 4701	**Prerequisite(s)**	None

Course Description

The course topics include; basic business decisions, defining, assessing and choosing options, laying the foundations, market research, understanding and reaching customers, cost and profit analysis, finances and assets, competitors and constraints, writing a business plan, running your business; selling techniques and business promotions, e-marketing and online selling, customer satisfaction, price and budgeting; cash flow and book-keeping, and negotiating and legal aspects of small businesses.

Equivalent Course(s) None

6.1.1 Bachelor of Science in Biosciences (BS-Biosciences)

Course Name	Toxicology	**Credit Hours**	**3** (3,0)
Course Code	BIO 4704	**Prerequisite(s)**	BIO 3605, BIO 3505

Course Description

The course topics include; history and principle of toxicology, absorption, distribution and excretion of toxicants, mechanisms of toxicity, bio information of xenobiotics, toxic effects of solvents and vapors, forensic toxicology, toxic responses of the respiratory system, air pollution, toxic responses of the liver and kidney, toxic responses of heart and vascular system, chemical carcinogenesis, genetic toxicology, toxic effects of radiation, risk assessment, regulatory toxicology, toxic effects of metals, ecotoxicology, toxic responses of blood and immune system, recognition of toxic chemicals, plants petrochemicals, and environmental hazards of use of pesticides and their ecological fallout drug overdose.

Equivalent Course(s) None

Course Name	Biophysics	**Credit Hours**	**3** (3,0)
Course Code	BIO 4802	**Prerequisite(s)**	BIO 1206

Course Description

The course topics include; conformational analysis of protein, nucleic acid structures, radiobiology, fundamental laws for current in biological tissues, bio potentials in hearts, electrocardiogram, action potentials in nervous system, thermodynamic principles; first law (energy, enthalpy) and second law of thermodynamics, free energy, standard physical free energy and standard biological free energy, determination of the free energy from equilibrium constant and EMF measurements, thermodynamics of phosphate compounds.

Equivalent Course(s) None

Course Name	Research Report	**Credit Hours**	**6** (3,3)
Course Code	BIO 4804	**Prerequisite(s)**	BIO 2401, BIO 1207
			BIO 2305, BIO 4803

Course Description

A Biosciences related research project is to be conducted, in which candidates are required to do a short lab experiment, and present their findings in terms of research report and power point presentations.

Equivalent Course(s) None

6.1 Master and PhD

6.2.1 Master of Public Health (MPH)

Students enrolled in Master of Public Health (MPH) are required to complete 19 courses and a thesis of total 60 Credit Hours, within five (5) years. The break-up of credit hours is as follows:

- *19 Courses (54 Credit Hours)*
- *1 Thesis (6 Credit Hours)*

Course Code	Course Title	Page #
First Year		
Fall Semester		
MPH 5103	Foundations of Public Health	180
MPH 5102	Epidemiology	180
MPH 5105	Statistical Reasoning in Public Health	180
MPH 5101	Environmental & Occupational Health	181
MPH 5104	Social & Behavioral Sciences	181
Spring Semester		
MPH 5203	Infectious Diseases	182
MPH 5205	Research Methodology	182
MPH 5202	Health Services Administration	183
MPH 5201	Chronic Non Communicable Diseases	183
MPH 5204	Nutrition & Health	184
Second Year		
Fall Semester		
MPH 5306	Maternal & Child Health	184
MPH 5302	Health Promotion	185
MPH 5303	Medical Ethics	185
MPH 5301	Demography	186
MPH 5305	Medicine & Law	186
MPH 5304	Medical Genetics	187
Spring Semester		
MPH 5409	Thesis	187
MPH 5401	Health Policy	187
MPH 5403	PPP & NGO Management	188
MPH 5402	International Health	188

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

6.2.1 Master of Public Health (MPH)

Course Name	Foundations of Public Health	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5103	**Prerequisite(s)**	None

Course Description

This course aims at developing public health concepts, problem solving proficiency and multi-disciplinary approach of Public Health. This includes epidemiology, biostatistics, environmental health, health services administration, social & behavioral sciences, and disease-control, reproductive health. Also, it includes maternal & child health, health informatics, genomics, communication, cultural & social diversity, community-based participatory research, policy, law, and global health and ethics. In addition, it addresses public health issues in its historical perspective, and impactful interventions and policy strategies for evaluation of a public health problem.

Equivalent Course(s) None

Course Name	Epidemiology	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5102	**Prerequisite(s)**	None

Course Description

This course includes epidemiological principles, their application to research methodology, development of skills & concepts & deriving meaningful interpretations of mathematical calculations. Also, it includes epidemiology in Public Health & Research; epidemiological study designs: their importance, uses and limitations; outcome measures for each study design; causality & association Inferential Epidemiology; validity and reliability; measuring disease burden: Rates, Ratios, Incidence, Prevalence, Role of Chance, Confounding and Bias in interpretations and disease screening.

Equivalent Course(s) None

Course Name	Statistical Reasoning in Public Health	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5105	**Prerequisite(s)**	None

Course Description

Statistical Reasoning in Public Health (PH) is fundamental for application of statistical methods in designing scientific studies, data collection, data analysis and inferences. This will introduce essential statistical tools of Public Health to conduct & interpret quality research. Also, application of concepts and numerical skills to PH issues is introduced. In addition, statistical software, epidemiological and statistical knowledge and skills in addressing and solving health and public health issues, and developing research strategies using statistical methods and statistical software/s.

Equivalent Course(s) None

6.2.1 Master of Public Health (MPH)

Course Name	Environmental & Occupational Health	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5101	**Prerequisite(s)**	None

Course Description

This course deals with the concepts, principles and applications of the natural and social science disciplines. It includes scientific understanding of causes and approaches to control major Environmental Health (EH) problems in industrialized and developing countries, Global & Pakistan EH Issues, and human impacts on environment and vice versa. Also, it includes sanitation status of Pakistan and the region; water, air and noise pollution; solid and hazardous waste management; environmental impact assessment basic principles; climate change and its effect on health; environment policy and law; forestry; and poverty and EH natural disaster management legislation and regulatory framework .In addition healthy cities and villages; health & safety of the occupational group; occupational health concepts, principles and methods; issues in low-income countries industrial hygiene; clinical occupational and environmental medicine are discussed. Moreover, legal and regulatory issues labor laws, OJI's, compensation, OSHA, environmental and occupational toxicology and acoustics, engineering controls, hazardous materials management, pesticides, radiation protection, and Global environment and ergonomics are also discussed.

Equivalent Course(s) None

Course Name	Social & Behavioral Sciences	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5104	**Prerequisite(s)**	None

Course Description

This course includes social sciences in PH, equity in health care, gender health, socio-cultural factors and their impact on health economics and health, role of civil society in health care, community participation in health care, identification of social and behavioral determinants of health, evaluation of interventions and policies for improvement of population health, and leadership positions in advocacy and public service. Also, it discusses testing innovative social policy and service interventions; planned social change; underserved, marginalized, and populations in special need; educational interventions; community development; social marketing; communication; adult-learning approaches; advocacy; social conditions affecting population's health; substance use; body dysmorphic syndrome; and anorexia Nervosa.

Equivalent Course(s) None

6.2.1 Master of Public Health (MPH)

Course Name	Infectious Diseases	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5203	**Prerequisite(s)**	None

Course Description

This course deals with introduction to Infectious Diseases (ID): concepts & strategies Epidemiology of ID; basic concepts Surveillance Outbreak Investigation Polio Eradication; Infectious diseases of PH importance; Immunization preventable diseases; seasonal diseases; endemic diseases; Zoonotic diseases; diseases of global importance, new challenges, and strategies; Biological principles for development of disease prevention and control or management programs; including immunology Burden of ID; Early Warning System; and Epidemiology of Genetics and its role in ID.

Equivalent Course(s) None

Course Name	Research Methodology	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5205	**Prerequisite(s)**	None

Course Description

This course includes critical reading of a scientific paper; definition of research; importance of research in PH; literature search; proposal writing; study design; sampling techniques; inclusion and exclusion criteria; methodology-choosing the statistical techniques; reference writing, abstract writing, and title writing for the proposals; basic concepts of social and medical anthropology; understand published research and design research; trials; data collection; and data analysis. Also, the course includes concepts and Methods of Qualitative Research; difference between Qualitative and Quantitative Research; sampling and selecting sampling strategy; sample structure; introduction to alternative data; and conducting qualitative analysis, narrative analysis and thematic analysis, and secondary data analysis of existing data sets.

Equivalent Course(s) None

6.2.1 Master of Public Health (MPH)

Course Name	Health Services Administration	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5202	**Prerequisite(s)**	None

Course Description

This course includes health services administration issues and priorities for Pakistan, traditional issues and challenge, introduction to systems, client orientation, process Aanalysis, problem identification, evidence-based decision making, and use of Health Management Information Systems (HMIS) in Health Sector Management (HSM). Also, it includes supportive supervision and leadership capacity building in Human Resource management, competencies and job description, challenge resolution techniques, staff motivation and performance appraisal, functional and task analysis, Monitoring & Evaluation M & E, financial management, budgeting and analysis in HSM and Logistics Cycle, and tools for Quality Assessment & Microeconomics. In addition, Pakistan & Global health systems, health economics, managed care and health insurance, marketing in health care and patient safety, hospital administration, strategic planning, economic evaluation, operations management, Organizational Behavior (OB) , accounting & control strategy determination, information systems, negotiations and communication health policy and payment, and health services administration a tool for optimal Public Health outcomes are discussed.

Equivalent Course(s) None

Course Name	Chronic Non Communicable Diseases	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5201	**Prerequisite(s)**	None

Course Description

This course discusses disease burden Non Communicable Diseases (NCD) and how risk factors affect the burden of NCDs, definitions & characteristics of NCDs, global trends in NCDs, risk factors and metabolic risk factors, common risk factors for NCDs, behavioral lifestyle risk factor, global burden & health effects, characteristics of NCDs, types of NCDs Global trends causes of death risk factors, modifiable risk factor and non-modifiable risk factor, global health observatory and Media center fact sheets, Cardio Vascular Disease (CVD), coronary heart disease, cerebro-vascular disease, peripheral arterial disease, congenital heart disease, and Chronic Obstructive Pulmonary Disease (COPD) risk factors mortality surveillance. Also, the course includes tobacco health effects, diet, global changes in diet and unhealthy diet side effects, physical inactivity alcohol consumption, metabolic risk factors, glucose salt cholesterol, over weight obesity, Body Mass Index (BMI), World Health Organization (WHO) global targets reducing risk factors autoimmune disorders and chronic degenerative disorders, and PH and health care Gerontological Health/Illness Behavior.

Equivalent Course(s) None

6.2.1 Master of Public Health (MPH)

Course Name	Nutrition & Health	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5204	**Prerequisite(s)**	None

Course Description

The course deals with human nutrition in growth and health; nutritional requirements in physiological states; stress, adolescents, Pregnancy, and Lactation; growth and nutritional status of children; field techniques and anthropometry, growth charts, nutritional prescription for mothers health, pregnancy and lactation, Breast Feeding (BF) Practices, Promotion and support of BF, Malnutrition, Marasmus, Protein Energy Malnutrition (PEM), and Kwashiorkor Micronutrient deficiencies. Also, the course discusses nutrition during special circumstances, nutrition communication skills and counseling, nutritional & social rehabilitation, Monitoring & Evaluation (M&E) of nutrition intervention programs, Expanded Program for childhood illnesses and Nutrition, Insulin Dependent Diabetes (IDD) control program, nutrition for children in special situations, poverty war natural calamities and Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS), food safety, and storage and preservation of foods. In addition, the course discusses nutrition policy and interventions, interaction of nutritional factors with genetic determinants of disease, infectious agents, nutritional influence on disease, mental and physical consequences of malnutrition, nutritional determinants of blood lipid, molecular mechanisms of diabetes and obesity, regulation of macromolecular nutrients, atherosclerosis and thrombosis, and Anorexia and Fashion world.

Equivalent Course(s) None

Course Name	Maternal & Child Health	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5306	**Prerequisite(s)**	None

Course Description

This course includes concepts of reproductive health introduction to Maternal & Child Health (MCH), Historical background of Reproductive Health (RH), Life course perspective to Reproductive Health International Conference on Population & Development (RHICPD), post International Conference on Population & Development (ICPD), Beijing + 10Safe Motherhood and Continuum of Care Reproductive behavior in Pakistan Contraception, abortion as a PH issue, antenatal & obstetrical care models, measurement of maternal mortality ratio & rates, Emergency Obstetric Care (EmOC) , Basic Obstetric Care (BOC) Unmet obstetrical need, delays in obstetrical care, Integrated approach to newborn care, RH needs of special populations, RH issues of adolescents, young adults and men, role of males in Safe Motherhood, cancers of reproductive tract, Sexually Transmitted Infections (STIs) etc. cancers of breast, HIV/AIDS, and Health systems issues. Also, the course includes role of Primary Health Care (PHC), district health system and tertiary care hospital in RH, evidence-based RH interventions Quality of care in RH, integrated approach to provision of RH services, determinants of Maternal Mortality (MM), Socio-economics of RH care, data sources in RH, optimal health for the fetus, newborn and the child, trends in survival, morbidity, nutritional and environmental factors, immunizations, access to health care and health policies, Injuries and disability, introduction to integrated child health program, and neonatal survival.

Equivalent Course(s) None

6.2.1 Master of Public Health (MPH)

Course Name	Health Promotion	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5302	**Prerequisite(s)**	**None**

Course Description

This course deals with risk transition Ottawa Charter Adelaide, Sundsval, Jakarta and Mexico, Bangkok conferences; Life course perspective; World Health Report; health perspectives and reflections of health as a continuum; approaches to Health Education Orientations for health promotion; evidence-based Health Promotion and Planning Principles; HP Hierarchy of evidence; Outcome model; Ecological Models Community theories; and diffusion of innovations. Also, it includes interpersonal social learning, cognitive theory, individual stages of change model, health belief model, consumer information processing model, social marketing logic model health principles of effective communication, message HEALTHCOMS 5 step methodology, CDC's Health Communication Wheel, and Health literacy.

Equivalent Course(s)

None

Course Name	Medical Ethics	**Credit Hours**	**2** (2, 0)
Course Code	MPH 5303	**Prerequisite(s)**	None

Course Description

The course includes introduction to Medical Ethics (ME), codes & oaths, normative principles, concepts of health & disease, physician patient relationship, limiting procreation, human experimentation, genetics and reproductive technologies. Ethical issues in organ transplantation and Psychiatry, health care delivery and resource allocation, paternalism, informed consent, competency, confidentiality, abortion, maternal-fetal issues, end-of-life decisions, death and dying, physician-assisted suicide, euthanasia, research on human subjects, objectivity and bias in medical research, animal research, health care reform, social justice and health care, organ donation and procurement, health care regulation, ethics committees, uncooperative patients, unfair system and pain control. In addition, the course discusses Dogmatism; situation ethics; extreme relativism; defensive postures or other untenable approaches; moral, philosophical, and social issues in medicine and health policy; moral and philosophical claims, arguments, and goals in medicine; And Professional and legal obligations of physicians.

Equivalent Course(s)

None

6.2.1 Master of Public Health (MPH)

Course Name	Demography	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5301	**Prerequisite(s)**	None

Course Description

The course deals with population dynamics: Static & dynamic measures of populations; population and health; Demographic perspective and equations, sources of population data, features of population pyramids, concepts and theories of demographic transition, world population growth patterns and population momentum; mortality and its measures global burden of diseases; fertility; natural increase and reproduction; comparison of characteristics of Pakistan, region and first world countries; migration and urbanization; population, poverty and politics; slam & family planning; population growth and aging; population policy and public health policy; and resource allocation on need assessment of population distribution pyramid across nations.

Equivalent Course(s) None

Course Name	Medicine & Law	**Credit Hours**	**2** (2, 0)
Course Code	MPH 5305	**Prerequisite(s)**	None

Course Description

This course includes general legal principles, standard of care, misconceptions of role of law in medical practice, sources of law, legal action against physicians, limitation of physician-patient relationship, maintaining and terminating the relationship, response to patient complaints, pre-employment physical examination theories of liability, Tort law and the nature of physician duty and malpractice, legal implications of treating patients in special unusual circumstances and highly infectious diseases, emergency and extension doctrine, Therapeutic privilege, Vicarious liability, and the law of agency and apparent agency borrowed servant doctrine. Also, it includes Medical records; medication errors; risk management; legal barriers to end-of-life care; Termination of treatment, refusal of blood transfusions, sexual misconduct physician licensure, Regulation of health professions, regulation of health facilities, health care financing (NHS, Medicare, Medicaid and private medical insurance law etc.), health care reform, regulation of drugs and devices; Human rights and legal protection of body; and mind and life of physician.

Equivalent Course(s) None

6.2.1 Master of Public Health (MPH)

Course Name	Medical Genetics	**Credit Hours**	**2** (2, 0)
Course Code	MPH 5304	**Prerequisite(s)**	None

Course Description

The course deals with diseases due to interaction of biological processes with environmental factors as they apply to chronic, multi-genic, multi-factorial diseases and metabolism; interface among genetic determinants and their divergent responses to stress signals or metabolic input; modification in adaptive mechanisms, lead to diabetes, cardiovascular disease and cancer; study of the molecular, cellular, and organismic adaptations and responses to nutrients, toxins, and radiation stress on human body; explore the genetic and molecular networks controlling these interactions, application of Genetic and mechanistic tactic to human populations for understanding, preventing, and treating multi-faceted human diseases; and prevention strategies of nutritional and metabolic diseases, common underlying mechanisms, and effective interventions against multiple diseases.

Equivalent Course(s) None

Course Name	Thesis	**Credit Hours**	**6** (6, 0)
Course Code	MPH 5409	**Prerequisite(s)**	None

Course Description

The course includes introduction to public health systems research is a vital element that the Master of Public Health (MPH) program at SZABIST boosts. This will conceptualize the research experience and revamp it into a scientific report. This will complete the requirement for the fourth session of MPH program. By completing their thesis MPH students will demonstrate their understanding of core competencies through successful application of core knowledge and principles, critical thinking and analytic reasoning skills.

Equivalent Course(s) None

Course Name	Health Policy	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5401	**Prerequisite(s)**	None

Course Description

This course includes introduction to health policy and planning; policy perspectives macro and micro level and their comparison impact of other National policies on health system devolution Plan; past to present health sector reforms; role of stakeholders and stakeholder analysis; policy versus planning; role of International commitments on health policies Millennium Development Goals (MDGs); Research and Policy; sustainability issues; Health Sector performance as a determinant of National Health Policy; evidence-based policy making; advocacy Policy and Politics; and Leadership and Policy.

Equivalent Course(s) None

6.2.1 Master of Public Health (MPH)

Course Name	PPP & NGO Management	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5403	**Prerequisite(s)**	None

Course Description

This course builds concepts of Non Governmental Organization (NGO) management & Public Private Partnership (PPP) structure of program approach & financial issues; management & fund raising; Basics of PPP and ethics of PPP; cross sector collaboration; Vision, Mission, strategies values, accountability, team work, programs and project of NGO; fund raising and running an NGO; financial policies & accountability; sustainability & capacity building; WHO & global PPP; finances for social business opportunities; legal formations of organizations in the non-profit-sector; structural fundamentals identification of purpose and stakeholders of NGOs; organizational governance in different types of entity in the non-profit-sector; Historical & basic values of leading world religions, their role on state authority, economy and NGO work;; and shared governance and conceptual tools for assessing favorable partnerships.

Equivalent Course(s) None

Course Name	International Health	**Credit Hours**	**3** (3, 0)
Course Code	MPH 5402	**Prerequisite(s)**	None

Course Description

The course includes the relationship of age, income, resources, health spending, literacy, etc.; to health and disease; overview of health indicators such as infant mortality, incidence, prevalence, quality of life, and comparison of these indices among developed and developing countries; Cross-cultural health beliefs/practices; health problems specific to developing countries; lifestyle diseases of developed world; infectious and tropical diseases; effects of government and private sector on health status; Traditional/alternative medical practices; Geographic, cultural, environmental factors in disease/mortality occurrence; appropriate technology/technology transfer; ethics of international health program evaluation and geographic information systems health equity and human rights, in relation to population health in developing countries; understand major issues in population and global health; the tools to examine evidence related to program effectiveness of undertaking population health interventions around the world political and ethical context; and NGOs and private sector for improvement of health systems around the world particularly in middle & lower-income countries.

Equivalent Course(s) None

6.2 Master and PhD

6.2.2 Master of Science in Biosciences (MS-Biosciences)

Students enrolled in Master of Science in Biosciences (MS-Biosciences) program are required to complete 8 courses with a minimum of 30 credit hours, within five (5) years to become eligible for obtaining the MS degree in Biosciences. The break-up of 30 courses is as follows:

- *4 Compulsory Courses (12 Credit Hours)*
- *4 Electives[29] (12 Credit Hours)*
- *1 Thesis / 2 additional electives instead of thesis (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
BIO 5101	Advanced Research Methodology	190
BIO 5102	Biostatistics	190
190		
	Spring Semester	
BIO 5201	Molecular Genetics	190
BIO 5202	Techniques in Biomolecules Analyses	191
	Second Year	
	Fall Semester	
BIO 5xxx	Elective-I	227
BIO 5xxx	Elective-II	227
BIO 5xxx	Thesis / Elective-V	227
	Spring Semester	
BIO 5xxx	Elective-III	227
BIO 5xxx	Elective-IV	227
BIO 5xxx	Thesis / Elective-VI	227

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

29 List of Electives is given in Appendix B.

6.2.2 Master of Science in Biosciences (MS-BIO)

Course Name	Advanced Research Methodology	**Credit Hours**	**3** (3,0)
Course Code	BIO 5101	**Prerequisite(s)**	None

Course Description

The course is aimed to provide a comprehensive description related to research and its methods. Topics include definition and value of research, scientific methods of research and its special features, classification of research, how to select a topic for research? theory and research, concepts, variables and types of variables, hypothesis testing and characteristics, review of literature, conducting a systematic literature review, theoretical framework, problem definition and research proposal, the research process, ethical issues in research, measurement of concepts, criteria for good measurement, research design, tools for data collection, sample and sampling, probability and non-probability sampling, data analysis tools, data presentation, experimental research, use of secondary data, research report writing, and referencing.

Equivalent Course(s) MS 5239

Course Name	Biostatistics	**Credit Hours**	**3** (2,1)
Course Code	BIO 5102	**Prerequisite(s)**	None

Course Description

The objective of this course is to equip the students with current tools and techniques to analyze and interpret data. Topics include the collection, classification, and presentation of descriptive data; the rationale of estimation and hypothesis testing; analysis of variance; analysis of contingency tables; correlation and regression analysis; multiple regression, logistic regression, and the statistical control of confounding; sample size and power considerations; and survival analysis. Special attention is directed to the ability to recognize and interpret statistical procedures in articles from the current literature. This course gives students the skills to perform, present, and interpret basic statistical analyses using the SPSS statistical package.

Equivalent Course(s) MS 5204

Course Name	Molecular Genetics	**Credit Hours**	**3** (3,0)
Course Code	BIO 5201	**Prerequisite(s)**	None

Course Description

In this course, students will be introduced to the new and current developments in the field of molecular biology and genetics. Topics include genome structure and function, chromosomes and chromatin structure, genome organization, genetic and physical mapping, gene regulation, gene and RNA splicing, gene cloning, control of gene regulation, molecular and genetic diagnosis of diseases, genetics of host resistance, gene therapy, human genome project, developmental genetics, cancer genetics, immunogenetics, neurogenetics, and population genetics.

Equivalent Course(s) None

6.2.2 Master of Science in Biosciences (MS-BIO)

Course Name	Techniques in Biomolecules Analyses	**Credit Hours**	**3** (2,1)
Course Code	BIO 5202	**Prerequisite(s)**	None

Course Description	In this course, students are introduced with various tools and techniques that are currently applied for the analyses of biomolecules. Techniques like nuclear magnetic resonance, mass spectrometry, ultraviolet and infrared spectroscopy, genome sequencing and proteome analysis, chromatographic separation of molecules are included in this course. Various visits to high profile research labs will be organized to give proper demonstration and experience to the students.
Equivalent Course(s)	None

Department of Education

7.1 Master of Science and PhD

7.1.1 Master of Science in Educational Leadership and Management (MSELM)

Students enrolled in the Master of Science in Educational Leadership and Management (MSELM) program are required to complete 30 credit hours within five (5) years. The break-up of 30 credit hour courses is as follows:

- *4 Compulsory Courses (12 Credit Hours)*
- *2 Electives[30] (6 Credit Hours)*
- *2 Independent Research Studies (IRS) (6 Credit Hours)*
- *1 Thesis/2 additional electives instead of thesis (6 Credit Hours)*

Course Code	Course Title	Page #
	First Year	
	Fall Semester	
ELM 5101	Leadership and Management in Educational Contexts	194
ELM 5102	Advance Research Methods and Techniques (ARMT)-I (Qualitative)	194
ELM 5103	Advance Research Methods and Techniques (ARMT)-II (Quantitative)	194
ELM 5xxx	Elective-I	228
	Spring Semester	
ELM 5201	Curriculum Development and Planning	195
ELM 5xxx	Elective-II	228
ELM 5108	Independent Research Study-I	-
ELM 5208	Independent Research Study-II	-
	Second Year	
	Fall Semester	
ELM 5xxx	Thesis/Elective-III & Elective-IV	228

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

30 List of Electives is given in Appendix B.

7.1.1 Master of Science in Educational Leadership and Management (MSELM)

Course Name	Leadership and Management in Educational Contexts	**Credit Hours**	**3** (3,0)
Course Code	ELM 5101	**Prerequisite(s)**	None

Course Description

The course aims to provide students with the opportunity to explore issues linked to effective educational leadership and management. It intends to improve the quality and effectiveness of school management by introducing current methods of educational administration, with a focus on important issues such as cultural influence, power, conflict, time management, and other problems associated with management of teaching and learning. Participants are going to audit their professional skills with an ongoing reflective practice and will identify particular areas for personal and professional development.

Equivalent Course(s) None

Course Name	Advance Research Methods and Techniques-I (Qualitative)	**Credit Hours**	**3** (3,0)
Course Code	ELM 5102	**Prerequisite(s)**	None

Course Description

This course develops critical and practical understandings for evaluating and conducting research from five qualitative research traditions (narrative research, grounded theory, phenomenology, ethnography and case studies). It enables students to develop; ethically and procedurally sound qualitative research proposal for qualitative research designs, collect, analyze and interpret qualitative, textual, and other non-traditional forms of data obtained through various tools and sources.

Equivalent Course(s) SS 6313, SS 5229, ELM 6101

Course Name	Advance Research Methods and Techniques-II (Quantitative)	**Credit Hours**	**3** (3,0)
Course Code	ELM 5103	**Prerequisite(s)**	None

Course Description

In this course, concepts, techniques and applications of quantitative methods for decision making are introduced. Topics include: forecasting, regression analysis, analysis of variance, statistical decision theory, utility theory, linear programming, and waiting lines. The course incorporates computer software packages.

Equivalent Course(s) SS 5122, SS 6105, ELM 6102

7.1.1 Master of Science in Educational Leadership and Management (MSELM)

Course Name	Curriculum Development and Planning	**Credit Hours**	**3** (3,0)
Course Code	ELM 5201	**Prerequisite(s)**	None

Course Description

The course aims at giving participants a theoretical as well as a practical insight into the principles that guide curriculum development. It discusses and analyzes in detail the main elements of a curriculum, basic issues related to designing a curriculum, factors that affect the process of curriculum development, and its implementation. Moreover, it reviews the models which have been the mainstays of curricular philosophies all over the world, and builds awareness about various curriculum designs that form the backdrop of education. Besides, it considers the impediments to curricular innovation and change, and look at practical ways to overcome the hurdles including consideration for professional development. The fair development of curricular knowledge and its principles will guide the participants to critique and evaluate a curriculum they practice and also plan and develop a curricular unit to see the link between theory and practice.

Equivalent Course(s) None

7.1 Master of Science and PhD

7.1.2 Doctor of Philosophy in Educational Leadership and Management (PhD ELM)

Students enrolled in the Doctor of Philosophy in Educational Leadership and Management (PhD ELM) program are required to complete a total of 48 credit hours within five (5) years. The following is the break-up of the 48 credit hour courses:

- *2 Compulsory Courses (6 Credit Hours)*
- *3 Electives*[31] *(6 Credit Hours)*
- *1 Independent Research Studies (3 Credit Hours)*
- *1 Dissertation (30 Credit Hours)*

Course Code	Course Title	Page #
PhD	**First Year**	
	Fall Semester	
ELM 6101	Advance Research Methods and Techniques-I (Qualitative)	197
ELM 6102	Advance Research Methods and Techniques-II (Quantitative)	197
ELM 6xxx	Elective-I	228
	Spring Semester	
ELM 6xxx	Elective-II	228
ELM 6xxx	Elective-III	228
ELM 6108	Independent Research Study-I	-
	Second Year	
	Fall Semester	
ELM 6xxx	Dissertation (Proposal)	-
	Spring Semester	
ELM 6xxx	Dissertation	-
	Third Year	
	Fall Semester	
ELM 6xxx	Dissertation	-
	Spring Semester	
ELM 6xxx	Dissertation	-

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

31 List of Electives is given in Appendix B.

7.1.2 Doctor of Philosophy in Educational Leadership and Management (PhD ELM)

Course Name	Advance Research Methods and Techniques-I (Qualitative)	**Credit Hours**	**3** (3,0)
Course Code	ELM 6101	**Prerequisite(s)**	None

Course Description	This course develops critical and practical understandings for evaluating and conducting research from five qualitative research traditions (narrative research, grounded theory, phenomenology, ethnography and case studies). It enables students to develop; ethically and procedurally sound qualitative research proposal for qualitative research designs, collect, analyze and interpret qualitative, textual, and other non-traditional forms of data obtained through various tools and sources.
Equivalent Course(s)	SS 6313, SS 5229, ELM 5102

Course Name	Advance Research Methods and Techniques-II (Quantitative)	**Credit Hours**	**3** (3,0)
Course Code	ELM 6102	**Prerequisite(s)**	None

Course Description	In this course, concepts, techniques and applications of quantitative methods for decision making are introduced. Topics include; forecasting, regression analysis, analysis of variance, statistical decision theory, utility theory, linear programming, and waiting lines. The course incorporates computer software packages.
Equivalent Course(s)	SS 5122, SS 6105, ELM 5103


International
Programs

8.1 Bachelor of Arts (Hons) in Business Studies (BABS)

Students enrolled in the BABS (Honors) program are required to complete 27 courses with 81 Credit Hours. Upon completion of the required courses at SZABIST, students can proceed for the Final Year to the University of South Wales to obtain their Bachelor (Honors) degree.

All courses may not be offered every year. Alternate courses may be substituted as and when required.

8.1 Bachelor of Arts (Hons) in Business Studies (BABS)

Course Name	Introduction to Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 1101	**Prerequisite(s)**	None
Course Description	This course covers the purpose and nature of accounting, forms of business enterprises, accounting information users, Generally Accepted Accounting Principles, accounting equation, accounting process, the accounting cycle, ledgers and entries, accounting for receivables, inventory and depreciation.		
Equivalent Course(s)	None		

Course Name	Microeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 1102	**Prerequisite(s)**	None
Course Description	Microeconomics studies how the individual parts of the economy, the households and the firms, make decisions to allocate limited resources. This course is based on a comprehensive study of the market structures, product markets and resource markets. It also deals with application of demand and supply, cost analysis and factors of production.		
Equivalent Course(s)	SS 1105, BA 5302		

Course Name	Introduction to Computers	**Credit Hours**	**3** (1,2)
Course Code	BA1103	**Prerequisite(s)**	None
Course Description	This course introduces fundamental computer concepts, including basic functions and operations of the computer. Course topics include; identification of hardware, operating system, application software, programming languages, files and data basics, data communication, networking basics, computer graphics, computer security and controls, MS Word, MS Excel, MS Access, MS Power Point, MS Project, internet browsers, databases and e-banking.		
Equivalent Course(s)	CSC 1104, BA 1108, BIO 1104		

Course Name	Personal Management	**Credit Hours**	**3** (3,0)
Course Code	BA1104	**Prerequisite(s)**	None
Course Description	This course teaches students to discover themselves and make positive changes to achieve greater effectiveness at work, and in personal and interpersonal relationship. Students learn the combination of factors such as personality, communication style, self-esteem, time management, conflict, negotiation and others that impact their personal effectiveness. They also learn methods, and techniques required to work effectively and confidently with others, using time management, negotiation and presentation skills with a positive mindset.		
Equivalent Course(s)	BA 1109, BA 5311		

8.1 Bachelor of Arts (Hons) in Business Studies (BABS)

Course Name	English Writing Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 1105	**Prerequisite(s)**	None

Course Description

The course covers comprehending problems and statements, developing arguments, and communicating ideas clearly and concisely. It also focuses on grammar, forms of punctuation, forms of speech, sentence and paragraph construction, composition, comprehension, writing styles, presentations, verbal communication skills, formal and informal presentations, interactive discussions, and role-playing.

Equivalent Course(s)

MD 1122, BA 5317,CSC 1102

Course Name	Maths for Business	**Credit Hours**	**3** (3,0)
Course Code	BA 1204	**Prerequisite(s)**	None

Course Description

The aim of this course is to prepare students to solve economic and managerial problem through mathematical concepts. This course is covered in four parts, first part is based on systems of linear equations and its solutions provide preliminary concept, construction of linear equations, graphical interpretation of data, systems of linear equations and solutions, introduction to matrix algebra, determinants, Cramer's rule & inverse method to solve system of linear equations. The second part develops the concept of linear and nonlinear functions, and their application, linear programming. The third part provides mathematics for finance, which covers simple, and compound interest rate computations and present and future annuity calculations. The last part of the course provides differentiation of basic functions, higher order differentiation, optimization of functions, definite and indefinite integration, applications of integration.

Equivalent Course(s)

BIO 1107

Course Name	Financial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 1201	**Prerequisite(s)**	BA 1101

Course Description

This course includes accounting for merchandise business, classified balance sheet, simple and multiple income statement, design of accounting system, accounts receivable, notes receivable, inventories, cost of goods sold, liabilities, corporation and measuring cash flow statements. Also, MS Excel is used and necessary accounting software's introduced.

Equivalent Course(s)

BA 5301

Course Name	Macroeconomics	**Credit Hours**	**3** (3,0)
Course Code	BA 1202	**Prerequisite(s)**	BA 1102

Course Description This course introduces key economic indicators, role of government in an economy, measurement of gross domestic product, components of aggregate demand, consumption function and Keynesian multiplier, investment function, government intervention through monetary and fiscal policies, impact of government intervention on economic activity, inflation and unemployment, aggregate supply and demand, balance of payments and trade, public finance, growth, and development.

Equivalent Course(s) BA 5402, SS 1205

Course Name	Management Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 1203	**Prerequisite(s)**	None

Course Description This course introduces the basic concepts of management, evolution and emergence of management thought, management function, planning concepts, decision-making, organizing, staffing, leading, controlling, and future of management and society.

Equivalent Course(s) BA 5303

Course Name	Oral Communication and Presentation Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 1206	**Prerequisite(s)**	BA 1105

Course Description In this course student learns the principles of a good presentation and has the opportunity to practice and experience these principles during this highly participative course. The course explores in detail, both verbal and non-verbal communication characteristics, and the importance of body-language expressions. Students are challenged through participative exercises with focus on active listening and observation techniques, that aim to make them competent in all facets of effective speech communication.

Equivalent Course(s) ME 1101, CSC 2101

Course Name	Statistics and Mathematics for Business	**Credit Hours**	**3** (3,0)
Course Code	BA 2305	**Prerequisite(s)**	BA 1204

Course Description The course covers descriptive statistical tools and mathematical methods. Statistical tools consist of; frequency distribution, graphs, charts, mean, and variance, percentiles, correlation, and regression analysis. Mathematical methods consist of matrices, system of linear equations, differentiation and optimization, linear programming, and simplex method. The topics are taught in relation to their application in business and economics.

Equivalent Course(s) BA 5305, BA 2311, BIO 1208

Course Name	Computer Programming for Managers	**Credit Hours**	**3** (1,2)
Course Code	BA 3604	**Prerequisite(s)**	BA 1103

Course Description

This course emphasizes on the ability of information and technology to enhance the capabilities of business enterprises. Topics include: skills in problem solving techniques, flow-charting and algorithm design, processing methods and programs. In addition, the scope of computer programming and its usage in the development of business applications would be covered.

Equivalent Course(s) None

Course Name	Introduction to Business Finance	**Credit Hours**	**3** (3,0)
Course Code	BA 2301	**Prerequisite(s)**	BA 1201

Course Description

This course covers the concepts of business environment, forms of business organization, overview of financial environment, cost markets, institutions and interest rates, analyses of financial statements, time value of money, sources of short-term and long-term finance, break even analysis, working capital management, valuation of financial securities (debt/equity) and introduction to capital budgeting.

Equivalent Course(s) BA 5401

Course Name	Graphic Design in Multimedia Presentations	**Credit Hours**	**3** (1,2)
Course Code	BA 2302	**Prerequisite(s)**	BA 3604

Course Description

The course introduces the computer system developed for graphics. It covers topics such as hardware and software components for multimedia production, basic computer operations, ergonomics, file management, scanning techniques, archiving capabilities, and utilization of the multimedia department server and internet connection. Software such as Adobe, Photoshop, and Freehand are introduced.

Equivalent Course(s) BA 4842

Course Name	Calculus	**Credit Hours**	3 (3,0)
Course Code	BA 2404	**Prerequisite(s)**	BA 2305

Course Description

The course covers the derivative, result of differentiation, derivative of logarithmic, exponential and trigonometric function, differential, growth and decay models, definite and indefinite integrals, techniques of integration, integrals involving logarithmic, exponential and trigonometric functions, integration by tables, area under a curve and between curves, functions of several variables, partial derivatives and their applications to optimization.

Equivalent Course(s) CSC 1101

Course Name	Marketing Principles	**Credit Hours**	**3** (3,0)
Course Code	BA 2303	**Prerequisite(s)**	BA 1203

Course Description

This course introduces the basic concepts of marketing, marketing environment, planning and research, market segmentation and targeting, consumer behavior, industrial marketing, product planning, product-mix, pricing, distribution, placement, promotional mix, and marketing in global scenarios.

Equivalent Course(s) BA 5404

Course Name	Managerial Accounting	**Credit Hours**	**3** (3,0)
Course Code	BA 2304	**Prerequisite(s)**	BA 2301

Course Description

This course focuses on cost allocation, process costing systems and spoilage. Specific topics include relevancy of revenues and costs, cost allocation decisions (joint and byproducts), process costing systems, Factory overhead applied, Standard Costing: Setting of Standards, Analysis of Variance and Controlling and Costing Material.

Equivalent Course(s) BA 5411

Course Name	Social Sciences	**Credit Hours**	**3** (3,0)
Course Code	BA 2306	**Prerequisite(s)**	None

Course Description

This is an interdisciplinary course combining the perspectives of two or more of the social and behavioral sciences (anthropology, economics, geography, history, political science, psychology and sociology) on the central issues in social science studies. This course explores the relationship between the social and behavioral sciences being studied. It reviews the application of the scientific method, compares theory and concepts, and reviews the different perspectives of the discipline being studied. This course is broad in nature and scope and provides the basis for further study in other various social and behavioral sciences.

Equivalent Course(s) BA 2307, SS 2307, MD 1104

Course Name	Business Ethics	**Credit Hours**	**3** (3,0)
Course Code	BA 2403	**Prerequisite(s)**	BA 1203

Course Description

This course introduces contemporary and controversial ethical issues facing the business community. Topics include: moral reasoning, moral dilemmas, law and morality, equity, justice and fairness, ethical standards, and moral development. Upon completion, students would be able to demonstrate an understanding of their moral responsibilities and obligations as members of the workforce and society.

Equivalent Course(s) None

Course Name	Organizational Behavior	**Credit Hours**	**3** (3,0)
Course Code	BA 3504	**Prerequisite(s)**	BA 1203

Course Description

The course covers the subject matter on three levels: individual, group and interpersonal, and organizational. At the individual level, the focus is to examine individual behavior and differences, learning, perception, personality, motivation, and stress. The group/ interpersonal level covers group and inter-group behavior, creativity, and team decision-making. It also includes power, conflict, leadership, and communication. At the organizational level, it reviews the basics of organizational culture, organizational change and development, structure, design, employment relationship, and career management.

Equivalent Course(s) BA 5207

Course Name	Statistical Inference	**Credit Hours**	**3** (3,0)
Course Code	BA 3605	**Prerequisite(s)**	BA 1204

Course Description

The course covers probability; probability distributions; Binomial, Poisson, Hyper-geometric, Chi Square distribution, Normal distribution, Sampling Distribution; estimation; hypothesis testing; one-population test, two-populations test and analysis of variance; and computer applications in statistics.

Equivalent Course(s) BA 5405

Course Name	Quantitative Skills	**Credit Hours**	**3** (3,0)
Course Code	BA 3505	**Prerequisite(s)**	BA 3605

Course Description

The course is an introduction to quantitative skills essentially required to business students. The course consists of several parts. First is related to arithmetic techniques like: numbers, exponents and roots, ratio and proportion, averages etc. and their usage in solving common problems. The second part consists of algebra, equations, and their applications in solving business problems. The third part comprises of coordinate geometry and combination of above parts. The fourth part covers graphical analysis and interpretation of the data. The fifth and last part consists of data sufficiency problems related to arithmetic, algebra and geometry.

Equivalent Course(s) None

Course Name	Financial Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3601	**Prerequisite(s)**	BA 2301

Course Description

Building upon the concepts already laid down in its pre-requisite, financial management helps students in exploring the depths of the relatively complex aspects of the financial world, with prime focus on the present value and opportunity cost of capital. This course covers topics such as nature, scope and function of financial decision areas, objectives of financial management, financial forecasting, working capital management, valuation of stocks, valuation of fixed income securities, project cash flow analysis, capital budgeting and decision making, determination of the required rate of return via asset pricing models, dividend policy, debt policy, introduction to financial risk management and derivatives and role of financial markets in Pakistan.

Equivalent Course(s) BA 5105

Course Name	Marketing Management	**Credit Hours**	**3** (3,0)
Course Code	BA 3602	**Prerequisite(s)**	BA 2303

Course Description

The course introduces the concept of customer and market-driven management. This course covers organizations' external and internal environment, strengths, weaknesses, opportunities and threats, marketing information system, buyer behavior analysis, segmenting, targeting and positioning strategies, product and pricing strategies, an in-depth study of strategy building by organizations with the help of case studies and a practical, hands-on learning experience of marketing management through close observations of marketing management at different levels in marketing channels.

Equivalent Course(s) BA 5106

Course Name	Management Information Systems	**Credit Hours**	**3** (3,0)
Course Code	BA 4704	**Prerequisite(s)**	BA 3604

Course Description

This course covers different information technology applications in business for efficient management of business operations by providing support to decision makers for strategic business decisions. The course examines various corporate frameworks for information management and their utility.

Equivalent Course(s) BA 5403

8.1 Bachelor of Arts (Hons) in Business Studies (BABS)

Course Name	Advertising	**Credit Hours**	**3** (3,0)
Course Code	BA 4721	**Prerequisite(s)**	BA 2303

Course Description

This course introduces students to the principles and practices of contemporary advertising, marketing and public relations. In this course students explore these roles in the marketplace, the elements of a successful advertisement, advertising production, and tasks accomplished by media professionals while promoting products and service businesses.

Equivalent Course(s) None

Course Name	Law and Taxation	**Credit Hours**	**3** (3,0)
Course Code	BA 4801	**Prerequisite(s)**	BA 1211

Course Description

The course covers process of legislation in Pakistan, Contract Act, Law of Sale of Goods, Partnership Law and Company laws, Sales Tax, Income Tax Law and Intellectual Property Laws. This course identifies the legal rights of persons in case of nonperformance of contracts, it also identifies the taxation system as well as kinds of taxes in Pakistan. Furthermore it also identifies the intellectual property rights in Pakistan.

Equivalent Course(s) None

8.2 LLB (University of London) International Program

The LLB program [University of London (International) program] requires the students to complete 8 courses with a minimum of 24 credit hours. The break-up of 12 courses is as follows:

- *8 Compulsory Courses (3 Credit Hours each)*
- *4 Electives[32] (3 Credit Hours each)*

In addition, the courses have been listed in order of Annual semester for the convenience of the students.

Course Code	Course Title	Page #
	First Year	
LA 1010	Criminal Law	209
LA 1020	Public Law	209
LA 1031	Common Law Reasoning and Institutions	209
LA 1040	Elements of the Law of Contract	210
	Second Year	
LA 3001	Law of Tort	210
LA 3002	Law of Trusts	210
LA 3003	Land Law (Property Law)	211
	Third Year	
LA 3005	Jurisprudence and Legal Theory	211

32 List of Elective given in Appendix B.

8.2 LLB (University of London) International Program

Course Name	Criminal Law	**Credit Hours**	**3** (3.0)
Course Code	LA 1010	**Prerequisite(s)**	None

Course Description

This course examines general principles of criminal liability, a range of fatal and non-fatal offences against the person and selected offences against property. Attempts to commit offences, secondary liability and defences also form part of the University of London criminal law curriculum. Criminal law consists of a highly developed body of precisely formulated legal rules but as criminal conduct is subject to punishment it thus engages with broad issues of morality and policy. Understanding the tension between certainty in the law and social adaptation affects the development of criminal law will take students beyond the basic stage of understanding the substantive rules of criminal law.

Equivalent Course(s) None

Course Name	Public Law	**Credit Hours**	**3** (3,0)
Course Code	LA 1020	**Prerequisite(s)**	None

Course Description

The UK constitution is famously 'unwritten' and thus contrasts with other constitutional models. Analysing key issues of sovereignty and the division of powers between legislature, executive and administration, one key question is how far the UK lives up to classic doctrine. Equally, membership of the European Union, and the Human Rights Act 1998, affect the overall picture of the relation between citizen and the state. To fully engage with this subject, students need to take an interest in current affairs and debates about what is involved in constitutional issues and reforms.

Equivalent Course(s) None

Course Name	Common Law Reasoning and Institutions	**Credit Hours**	**3** (3.0)
Course Code	LA 1031	**Prerequisite(s)**	None

Course Description

This comprehensive introduction to the English legal system seeks to convey what is distinctive about the common law approach as a legal methodology and as it reflects the history and politics of England and Wales. It examines the sources of law, the civil and criminal court structures, the role of judges and the jury. A running concern of the course is the question of fairness: the impact of the Human Rights Act on the criminal justice system and the issues of access to justice in the civil courts. This course is also vital in initiating students into the process of legal research and the final examination has a compulsory section on research activities carried out during the year.

Equivalent Course(s) None

8.2 LLB (University of London) International Program

Course Name	Elements of the Law of Contract	**Credit Hours**	**3** (3.0)
Course Code	LA 1040	**Prerequisite(s)**	None

Course Description

Contracts are the legal basis of all commercial transactions. Covering the core topics – including formation of contracts, capacity to contract and privity, performance and breach of contract and remedies for breach of contract – the emphasis is on understanding the key underlying principles of English law. This is very much a case law subject, with judicial precedents stretching back nearly 400 years in some instances (but more usually of 19th and 20th century origin) and a small number of statutory provisions, as well as the impact of EU law. An understanding of what factors judges may, or must, take into account when exercising their discretion is crucial.

Equivalent Course(s) None

Course Name	Law of Tort	**Credit Hours**	**3** (3.0)
Course Code	LA 3001	**Prerequisite(s)**	None

Course Description

The law of tort concerns the civil liability for the wrongful infliction of injury by one person upon another. The characteristic claim in tort is for monetary compensation or damages. There is no single principle of liability, which makes tort law complex; also there are other sources of monetary compensation for personal injuries (such as unemployment /social security payments, private insurance, criminal injuries compensation schemes, etc.) as well as the fact that the same harms may be pursued through the criminal justice system. Negligence is a key topic and other topics include: interference with economic interest; trespass; defamation; vicarious liability as well as defences and remedies, and sources of future development including EU law.

Equivalent Course(s) None

Course Name	Law of Trusts	**Credit Hours**	**3** (3.0)
Course Code	LA 3002	**Prerequisite(s)**	None

Course Description

A part of Equity law, the law of trusts deals with the rules and principles governing the creation and operation of trusts – a particular method of holding property that developed historically primarily to preserve family wealth, particularly by minimising liability to taxation. The syllabus focuses on three broad areas:
1) the requirements for establishing a valid trust (including express private trusts; charitable trusts; implied and resulting trusts; constructive trusts);
2) the powers and obligations of trustees under a valid trust (including appointment, retirement and removal of trustees); and
3) the remedies available when trustees act improperly.

Equivalent Course(s) None

Course Name	Land Law (Property Law)	**Credit Hours**	**3** (3,0)
Course Code	LA 3003	**Prerequisite(s)**	None

Course Description

Much of the work of solicitors turns around property law in the form of conveyancing (buying and selling dwellings or commercial enterprises) or the relations between landlords and tenants. Here the central principles of English law are portrayed, including the necessary historical context, as many of the basic concepts were established in social conditions very different from today. Property law centres on the concept of the nature and quantum of the various interests that can exist in land, the principles governing the creation, transfer and extinction of these interests and the extent that those interests are enforceable against third parties.

Equivalent Course(s) None

Course Name	Jurisprudence and Legal Theory	**Credit Hours**	**3** (3,0)
Course Code	LA 3005	**Prerequisite(s)**	None

Course Description

The nature of jurisprudence: methodology, analysis, theory and the idea of definition, the relevance of language and ideology.

Legal positivism and its critics: the command theory, Hart-Fuller debate, Dworkin's criticism of positivism, Kelsen (including the use of Kelsenian principles in revolution cases), Raz's theory of law.

Moral theory and the law: the history of natural law, Finnis's natural law theory, liberalism and the Hart-Devlin debate, moral rights, utilitarianism and its critics, utilitarianism and the economic analysis of law.

Legal reasoning: Dworkin's theory of law as integrity, Dworkin's methodology, practical reasoning, Hohfeld's analysis of legal rights.

Social theory and critical accounts of law, including the American Critical Legal Studies movement, Marxist theories of law and state, feminist jurisprudence.

A study in depth of a text prescribed by the examiners on which there will be one compulsory question in the examination.

Equivalent Course(s) None


Appendix

9.0 Appendix A - Optional Courses

9.1 Management Sciences

BACHELOR OF BUSINESS ADMINISTRATION (BBA)

Optional Courses

(Compulsory Courses Optional to Offer by Campus)

BA 3519	Current Affairs
BA 3506	Foreign Languages
BA 3619	Enterprise Management
BA 3614	Business Analysis and Forecasting
BA 4707	Marketing Research*
BA 4701	Islamic Banking and Finance*
BA 4842	Graphic Design for Multimedia*

*Can be taken as an Elective if not offered by Campus as a compulsory course.

10.0 Appendix B - Electives

10.1 Management Sciences

BACHELOR OF BUSINESS ADMINISTRATION (BBA)

Elective Courses

Management

BA 4116	Supply Chain Management
BA 4117	Salary and Compensation
BA 4711	Change Management
BA 4712	Industrial Relations & Labor Laws
BA 4713	Leadership and Motivation Techniques
BA 4813	Training and Development
BA 4815	Event Management
BA 4826	Talent Management
BA 4812	Recruitment and Selection
BA 4844	Operations Research

Marketing

BA 4707	Marketing Research
BA 4116	Supply Chain Management
BA 4217	Experiential Marketing
BA 4721	Advertising
BA 4722	Brand Management
BA 4815	Event Management
BA 4816	Industrial Marketing
BA 4824	Sales Management
BA 4842	Graphic Design for Multimedia
BA 4739	Export Marketing
BA 4125	Emerging Media
BA 4821	Media Planning
BA 4859	Product Innovation and Design

Finance

BA 4218	Financial Research
BA 4719	Investment Banking
BA 4732	Corporate Finance
BA 4734	International Banking
BA 4831	Portfolio and Investment Management
BA 4833	Security Analysis
BA 4834	Treasury and Funds Management
BA 4855	Financial Risk and Analysis
BA 4752	Financial Reporting and Analysis
BA 4756	Econometrics
BA 4115	Derivatives
BA 4724	Financial Modeling
BA 4701	Islamic Banking and Finance
BA 3614	Business Analysis and Forecasting

Information Technology

BA 4224 e-Marketing Strategies
BA 4714 e-Business and e-Commerce Management
BA 4745 Information System Audit
BA 4822 Media Production
BA 4842 Graphic Design for Multimedia
BA 4844 Operations Research

MASTER OF BUSINESS ADMINISTRATION (MBA)

Elective Courses

Management

BA 5111 Business Process Re-engineering
BA 5112 Change Management
BA 5113 Industrial Management and Labor Relations
BA 5114 Leadership and Motivation Techniques
BA 5115 Operations Research
BA 5212 Petroleum Business Management and Risk Analysis
BA 5213 Project Management
BA 5214 Supply Chain Management
BA 5218 Organizational Strategy and Effectiveness
BA 5238 Organization Development

Human Resource Management

BA 5113 Industrial Management and Labor Relations
BA 5114 Leadership and Motivation Techniques
BA 5117 Performance Appraisal
BA 5118 Compensation Management
BA 5128 Leadership Readiness
BA 5216 Training and Development
BA 5215 Recruitment and Selection
BA 5239 HR Policy & Development
BA 5165 Job Analysis & Design
BA 5285 Performance Management
BA 5xxx HR Analytics
BA 5xxx Conflict Resolution
BA 5xxx Crises Management

Finance

BA 5119 Micro Finance
BA 5131 Advance Financial Management
BA 5132 Analysis of Financial Statements
BA 5133 Corporate Finance
BA 5134 Derivatives
BA 5135 Financial Markets and Institutions
BA 5137 International Banking
BA 5212 Petroleum Business Management and Risk Analysis
BA 5231 Islamic Banking and Finance
BA 5232 Portfolio and Investment Management

BA 5233	Project Evaluation
BA 5234	Security Analysis
BA 5235	Treasury and Funds Management
BA 5184	Financial Product Regulations
BA 5284	Theory and Practice of Lending
BA 5279	Working Capital Management
BA 5187	Business Analysis and Forecasting
BA 5138	Econometrics
BA 5139	Financial Risk Analysis
BA 5229	Financial Modeling
BA 5175	Banking operations
BA 5244	Investment Banking
BA 5xxx	Technical Analysis in Financial Markets
BA 5xxx	Financial Management Policy
BA 5xxx	HR Operations and Business Partnering

Marketing

BA 5121	Advertising
BA 5122	Brand Management
BA 5123	Consumer Behavior
BA 5124	Customer Relationship Management
BA 5125	Ethics in Marketing
BA 5126	Export Marketing
BA 5127	Global Marketing
BA 5129	Services Marketing
BA 5221	Marketing Research
BA 5223	Marketing of Financial Services
BA 5224	Media Planning and Management
BA 5225	Personal Selling
BA 5226	Pharmaceutical Marketing
BA 5227	Sales Management
BA 5228	Retail Management
BA 5241	e-Commerce
BA 5169	Technology Management and Innovation
BA 5163	Enterprise Resource Planning
BA 5111	Business Process Re-engineering
BA 5168	Business Intelligence
BA 5268	Data Warehousing and Mining
BA 5217	Industrial Marketing
BA 5286	Media Marketing
BA 5182	Trade Marketing
BA 5264	IGRM
BA 518	Social Marketing

Supply Chain Management

BA 5214	Supply Chain Management
BA 5263	Dynamics of Logistics and Distribution
BA 5265	Operational Planning in Supply Chain
BA 5266	Strategic Procurement in SCM
BA 5287	Execution & Control of operations in SCM
BA 5xxx	Supply Chain Finance
BA 5xxx	Advanced Manufacturing and TPM in SCM
BA 5xxx	Detailed Scheduling & Planning in S

MASTER OF BUSINESS ADMINISTRATION IN BANKING & FINANCE (MBA B&F)

Elective Courses

BA 5xxx	Asset Management
BA 5417	Advance Credit Management
BA 5xxx	Banking Crises and Management
BA 5xxx	Behavioral Finance
BA 5xxx	Capital Markets
BA 5xxx	Commercial Banking
BA 5xxx	Corporate Investment and Banking
BA 5xxx	Corporate Restructuring and Design
BA 5xxx	Financial Intermediation
BA 5xxx	Financial Modeling
BA 5xxx	Financial Planning and Budgeting
BA 5xxx	Marketing of Financial Services
BA 5xxx	Financial Systems
BA 5xxx	Fixed Income Investments
BA 5xxx	Foreign Exchange Operations and Management
BA 5xxx	Banking Insurance
BA 5xxx	Islamic Banking and finance
BA 5xxx	Information System Audit
BA 5xxx	International Trade and Finance
BA 5xxx	Leasing Strategies and Regulations
BA 5xxx	Mergers and Acquisitions in Banking
BA 5xxx	Operations and Derivatives
BA 5xxx	Project Financing
BA 5xxx	Micro and SME Finance
BA 5xxx	Theory and policy of Modern Finance
BA 5xxx	Venture Capital and Private Equity
BA 5xxx	Working Capital Management

MASTER IN PROJECT MANAGEMENT (MPM)

Elective Courses

PM 5151	Enterprise Resource Planning
PM 5152	Innovation and Technology Management
PM 5153	Managing Projects
PM 5251	Procurement and Contract Management
PM 5252	Project Change Management
PM 5253	Project Human Resource Management
PM 5255	Project Change and Risk Management
PM 5351	Project Risk Management
PM 5352	Project Stakeholders Management
PM 5353	Research Methods for Project Managers

EXECUTIVE MASTER OF BUSINESS ADMINISTRATION (EMBA)

Elective Courses

Marketing

BE 473	Advertising
BE 474	Brand Management
BE 436	Retail Management
BE 432	Services Marketing
BE 472	Media Planning and Management
BE 484	Consumer Behavior
BE xxx	Consumer Relationship Management

Finance

BE 481	Corporate Finance
BE 424	International Banking and Finance
BE 482	Islamic Banking and Finance
BE 487	Portfolio and Investment Management
BE 488	Project Evaluation
BE 483	Analysis of Financial Statements
BE xxx	Advance Financial Management

Human Resource Management

BE 427	Leadership and Motivational Techniques
BE 471	Compensation Management
BE 486	Training and Development
BE 476	Recruitment and Selection
BE 485	Performance Appraisal

Supply Chain Management

BE 428	Supply Chain Management
BE 493	Dynamics of Logistics and Distribution
BE 494	Operational Planning in Supply Chain
BE 495	Strategic Procurement in SCM

MASTER OF SCIENCE IN PROJECT MANAGEMENT (MSPM)

Elective Courses

MP 5201	Quality Management Tools
MP 5102	Project Management Constraints
MP 5314	Project Review, Assurance and Governance
MP 5324	Risk Management Dynamics
MP 5217	Financial Decision Analysis
MP 5205	Theories of Management
MP 5218	Software Project Management
MP 5317	Supply Chain Management
MP 5325	Project Simulation
MP 5215	Human Resource Management Communication
MP 5318	Business Analysis

MASTER OF SCIENCE IN MANAGEMENT SCIENCES (MSMS)

Elective Courses

MS 5101	Change Management
MS 5102	Organizational Development
MS 5103	Managerial Economics
MS 5104	Strategic Marketing Decisions
MS 5105	Econometrics
MS 5112	Strategic Management
MS 5113	Financial Time Series
MS 5117	Qualitative Tools and Analysis
MS 5203	Global Corporate Strategy
MS 5205	International Business Management
MS 5211	Creative Leadership
MS 5215	Corporate Finance
MS 5216	Corporate Governance
MS 5225	Leadership and Motivation Techniques
MS 5237	Business Finance and Decision Making
MS 5238	Strategic Human Resource Development
MS 5241	Public Administration and Governance
MS 5249	Advance Marketing Strategy
MS 5301	Seminars in Marketing
MS 5315	Research Writing
MS 5414	Applied Econometrics
MS 5415	NGO Management
MS 5422	Distribution and Channel Management
MS 5423	Global Governance & Development
MS 5424	Strategic Brand Management

DOCTOR OF PHILOSOPHY IN MANAGEMENT SCIENCES (PhD MS)

Elective Courses

MS 6111	Business Finance and Decision Making
MS 6112	Strategic Human Resource Development
MS 6113	Applied Econometrics
MS 6114	NGO Management
MS 6201	Change Management
MS 6202	Econometrics
MS 6204	Strategic Marketing Decisions
MS 6211	Organizational Development
MS 6215	Seminars in Marketing
MS 6311	Corporate Governance
MS 6312	Advanced Marketing Strategies
MS 6313	Research Writing
MS 6314	Global Corporate Strategy
MS 6316	Distribution and Channel Management
MS 6411	Financial Time Series
MS 6412	Creative Leadership
MS 6413	International Business Management
MS 6415	Strategic Brand Management
MS 6416	Global Governance & Development

10.0 Appendix B - Electives

10.2 Computer Science

BACHELORS OF SCIENCE IN COMPUTER SCIENCE (BSCS)

Elective Courses

University Electives

CSC 4501	Business and Technology Ethics
CSC 4601	Foreign Language
CSC 4502	Design and Creativity
CSC 4602	History of Scientific Ideas
CSC 4503	Introduction to Accounting
CSC 4603	Management Principle
CSC 4504	Organizational Behavior
CSC 4604	Research Report
CSC 4505	System Administration

CS Electives

CSC 4701	Advance Internet Architecture
CSC 4801	Advance Programming Techniques
CSC 4702	Advance Telecommunication Technologies
CSC 4802	Android Application Development
CSC 4703	Applied Data Mining
CSC 4803	Auditing Information System
CSC 4707	Bioinformatics
CSC 4804	Business Process Re-engineering
CSC 4705	Control Systems
CSC 4805	Data and Network Security
CSC 4706	Digital Image Processing
CSC 4806	Digital Signal Processing
CSC 4707	DNA Computing
CSC 4807	Embedded Programming
CSC 4708	Enterprise Resource Planning
CSC 4808	Ethical Hacking
CSC 4709	Internet Business Models
CSC 4809	iOS Development
CSC 4712	IT Innovations
CSC 4711	Linux Administrator-I
CSC 4811	Linux Administrator-II
CSC 4713	Managing Data-Center Projects
CSC 4812	Mechatronics
CSC 4813	Modeling and Simulation
CSC 4714	Network Security and Encryption
CSC 4715	Oracle Administration-I
CSC 4815	Software Engineering-II
CSC 4814	Software Project Management
CSC 4716	Switching and Routing
CSC 4816	Technopreneurship
CSC 4717	Web Technologies-I
CSC 4817	Web Technologies-II
CSC 4718	Wireless and Mobile Technologies

MASTER OF SCIENCE IN COMPUTER SCIENCE (MSCS)

Elective Courses

CS (Stream-I)

CSC 5xxx	Real-Time Systems
CSC 5xxx	Digital Image Processing
CSC 5xxx	Machine Learning
CSC 5xxx	Data Mining

CS Stream-II)

CSC 5xxx	Reverse Engineering
CSC 5xxx	Digital Forensics & Malware Analysis
CSC 5xxx	Advanced Resource Sharing Architecture
CSC 5xxx	Computer Vision
CSC 5xxx	Robotics
CSC 5xxx	Advanced Database Design
CSC 5xxx	Distributed Computing
CSC 5xxx	Systems and Network Programming

SE (Stream-I)

SEC 5xxx	Software Requirement Engineering
SEC 5xxx	Software System Architecture
SEC 5xxx	Software System Quality
SEC 5xxx	Advanced Software Engineering

SE (Stream-II)

SEC 5xxx	Software Analysis & Testing
SEC 5xxx	Web Engineering
SEC 5xxx	Software Project Management

N&S (Stream-II)

NSC 5xxx	Advanced Computer Networks
NSC 5xxx	Network Security
NSC 5xxx	Applied Cryptography
NSC 5xxx	Information Security

N&S (Stream-II)

NSC 5xxx	Telecom Policies and Regulations
NSC 5xxx	Mobile Ad-hoc Networks
NSC 5xxx	Advanced Data Communications
NSC 5xxx	Information Security

DOCTOR OF PHILOSOPHY IN COMPUTING (PhD Computing)

Elective Courses

CS (Stream-I)

CSC 5xxx	Real-Time Systems
CSC 5xxx	Digital Image Processing
CSC 5xxx	Machine Learning
CSC 5xxx	Data Mining

CS Stream-II)

CSC 5xxx	Reverse Engineering
CSC 5xxx	Digital Forensics & Malware Analysis
CSC 5xxx	Advanced Resource Sharing Architecture
CSC 5xxx	Computer Vision
CSC 5xxx	Robotics
CSC 5xxx	Advanced Database Design
CSC 5xxx	Distributed Computing
CSC 5xxx	Systems and Network Programming

SE (Stream-I)

SEC 5xxx	Software Requirement Engineering
SEC 5xxx	Software System Architecture
SEC 5xxx	Software System Quality
SEC 5xxx	Advanced Software Engineering

SE (Stream-II)

SEC 5xxx	Software Analysis & Testing
SEC 5xxx	Web Engineering
SEC 5xxx	Software Project Management

N&S (Stream-II)

NSC 5xxx	Advanced Computer Networks
NSC 5xxx	Network Security
NSC 5xxx	Applied Cryptography
NSC 5xxx	Information Security

N&S (Stream-II)

NSC 5xxx	Telecom Policies and Regulations
NSC 5xxx	Mobile Ad-hoc Networks
NSC 5xxx	Advanced Data Communications
NSC 5xxx	Information Security

10.0 Appendix B - Electives

10.3 Social Sciences

BACHELOR OF SCIENCE IN SOCIAL SCIENCES (BSSS)

Elective Courses

SS 1154	Literature
SS 1157	Comparative Religion
SS 1163	Development and Politics
SS 1254	World history
SS 1262	Mass Media
SS 2305	Human Geography

All courses may not be offered every year. Alternate courses may be substituted as and when needed.

MASTER OF SCIENCE IN SOCIAL SCIENCES (MSSS)

Elective Courses

SS 5326	Research Philosophy
SS 5223	Financial Time Series
SS 5227	Research Writing
SS 5104	Politics of Geo-Economics
SS 5111	Democratization as a Global Process
SS 5212	NGO Management
SS 5214	Public Policy Management
SS 5305	Political Economy of Pakistan
SS 5306	Sacred and Secular
SS 5311	Environmental Studies
SS 5312	Globalization and Developing Countries
SS 5313	Intellectual Property Rights and Laws
SS 5226	Issues in Pakistan's Political and Constitutional History
SS 5321	History of Ideas
SS 5228	Corporate Governance
SS 5206	Political Economy in the Global Perspective
SS 5402	Law and Human Right
SS 5116	Econometrics

DOCTOR OF PHILOSOPHY IN SOCIAL SCIENCES (PhD SS)

Elective Courses	
SS 5326	Research Philosophy
SS 5223	Financial Time Series
SS 5227	Research Writing
SS 5104	Politics of Geo-Economics
SS 5111	Democratization as a Global Process
SS 5212	NGO Management
SS 5214	Public Policy Management
SS 5305	Political Economy of Pakistan
SS 5306	Sacred and Secular
SS 5311	Environmental Studies
SS 5312	Globalization and Developing Countries
SS 5313	Intellectual Property Rights and Laws
SS 5226	Issues in Pakistan's Political and Constitutional History
SS 5321	History of Ideas
SS 5228	Corporate Governance
SS 5206	Political Economy in the Global Perspective
SS 5402	Law and Human Right
SS 5116	Econometrics

10.0 Appendix B - Electives

10.4 MEDIA SCIENCES

BACHELOR OF MEDIA SCIENCES (BMS)

Elective Courses

MD 4732	Typography
MD 4786	Directing for Actors
MD 4854	Illustration
MD 4862	Advanced Studio Project-I
MD 4877	The International Newsroom
MD 4882	Audio Podcasting
MD 4867	Topics in Film and Television
MD 4886	Game Design

MASTER OF SCIENCE IN MEDIA STUDIES (MSMD)

Elective Courses

MD 5xxx	Media, Politics, and Governance
MD 5xxx	Issues in International Media
MD 5xxx	Theories of Communication Design
MD 5xxx	Theories of Film and Television
MD 5xxx	Urban Geographies and Visual Cultures
MD 5xxx	Media, Art, and Technology

10.0 Appendix B - Electives

10.5 Mechatronics Engineering

BACHELOR OF ENGINEERING IN MECHATRONICS ENGINEERING (BEME)

Elective Courses

Engineering Electives

ME 4722	Digital Signal Processing
ME 4723	Simulation and Modeling
ME 4821	Digital Image Processing
ME 4822	Introduction to Bio-Medical Engineering
ME 4721	Artificial Intelligence and Computer Vision

Management Sciences Electives

ME 4823	Engineering Management
ME 4724	Entrepreneurship
ME 4825	Research Methodology
ME 4725	Leadership and Motivation Techniques
ME 4824	Organizational Behavior

10.0 Appendix B - Electives

10.6 Biosciences

BACHELOR OF SCIENCE IN BIOSCIENCES (BS-Biosciences)

Elective Courses

Molecular Biology

BIO 4721	Advance Biochemical Techniques
BIO 4722	Media Transcription
BIO 4822	Nanotechnology
BIO 4725	Advanced Molecular Techniques
BIO 4726	Applied Enzymology
BIO 4723	Virology
BIO 4727	Systems Biology

Biotechnology

BIO 4721	Advance Biochemical Techniques
BIO 4727	Food Biotechnology
BIO 4826	Medical Biotechnology
BIO 4825	Fermentation Biotechnology
BIO 4823	Stem cell Research
BIO 4724	Telemedicine
BIO 4726	Applied Enzymology

MASTER OF SCIENCE IN BIOSCIENCES (MS-Biosciences)

Elective Courses

5xxx	Applied Biotechnology
5xxx	Environmental and Industrial Biotechnology
5xxx	Plant Biotechnology
5xxx	Fermentation Design and Engineering
5xxx	Medical Biotechnology
5xxx	Biocatalysis and Enzymology
5xxx	Clinical Biochemistry
5xxx	Drug Discovery and Development
5xxx	Biocomputation
5xxx	Cancer Biology
5xxx	Applied Immunology
5xxx	Techniques in Diagnostics
5xxx	Molecular Dynamics
5xxx	Food Sampling Techniques and Analysis
5xxx	Food Quality Management System
5xxx	Food Toxicology and Adulteration

10.0 Appendix B - Electives

10.7 Education

MASTER OF SCIENCE IN EDUCATIONAL LEADERSHIP AND MANAGEMENT (MSELM)

Elective Courses	
5xxx	Sociological Issues in Education/Access/Outcomes and Quality
5xxx	Learning Effectiveness in Higher Education Contexts
5xxx	Use of Technology in Education
5xxx	Education in the Context of Conflict
5xxx	Socio-Politics of Language Policy in Educational Contexts
5xxx	Leading Change for Transformative Education
5xxx	Educational Policy Reform: Comparative Perspectives
5xxx	Performance Management and Professional Development
5xxx	School Evaluation and Monitoring
5xxx	Teacher Education
5xxx	Research Philosophy
5xxx	Testing, Assessment and Evaluation
5xxx	Finance and Resource Management
5xxx	Organizational Development

DOCTOR OF PHILOSOPHY IN EDUCATIONAL LEADERSHIP AND MANAGEMENT (PhD ELM)

Elective Courses	
6xxx	Sociological Issues in Education/Access/Outcomes and Quality
6xxx	Learning Effectiveness in Higher Education Contexts
6xxx	Use of Technology in Education
6xxx	Education in the Context of Conflict
6xxx	Socio-Politics of Language Policy in Educational Contexts
6xxx	Leading Change for Transformative Education
6xxx	Educational Policy Reform: Comparative Perspectives
6xxx	Performance Management and Professional Development
6xxx	School Evaluation and Monitoring
6xxx	Teacher Education
6xxx	Research Philosophy
6xxx	Testing, Assessment and Evaluation
6xxx	Finance and Resource Management
6xxx	Organizational Development

10.0 Appendix B - Electives

10.8 LLB

LLB (UNIVERSITY OF LONDON)

Elective Courses

LA 3021	Company Law
LA 3013	Commercial Law
LA 3028	Introduction to Islamic law
LA 3024	EU Law

11.0 Appendix C - Major Requirements

11.1 Social Sciences

BACHELOR OF SCIENCE IN SOCIAL SCIENCES (BSSS)

Major Courses

PSYCHOLOGY

SS 4111	Abnormal Psychology
SS 4112	Developmental Psychology
SS 4134	Cognitive Psychology
SS 4135	Educational Psychology
SS 4234	Psychodynamics
SS 4268	History of Psychology
SS 4167	Child Psychology
SS 4156	Clinical Psychology
SS 4114	Personality Theories
SS 4255	Counseling and Psychotherapy
SS 4211	Psychological Testing
SS 4236	Positive Psychology
SS 4168	Experimental Psychology
SS 4267	Forensic Psychology
SS 4262	Physiological Psychology

SOCIOLOGY

SS 4269	Civil Society
SS 4271	Peace Movements
SS 4138	Corporate Social Responsibility
SS 4141	Mass Media and Society
SS 4237	Post-Colonial State and Social Development
SS 4238	Social Entrepreneurship
SS 4239	Social Justice
SS 4241	Sociology of Education
SS 4242	The Sociology of Poverty
SS 4196	Social Theories-I
SS 4296	Social Theories-II
SS 4171	Class, Caste, and Ethnicity in South Asia
SS 4172	Political Sociology
SS 4272	Social Change in Pakistan
SS 4169	Citizenship
SS 4273	Urbanization

INTERNATIONAL RELATIONS

SS 4275	Foreign Policy and International Politics
SS 4274	Diplomacy, Conflict Resolution and Confidence Building Measures
SS 4219	Peace Research
SS 4222	trategic Studies
SS 4176	Globalization and Global Governance
SS 4277	Modern Ideologies
SS 4174	Central and West Asian Studies
SS 4175	European Studies
SS 4177	Middle Eastern Studies

SS 4179	Politics of Terrorism
SS 4178	Muslim World
SS 4276	International Institutions
SS 4278	Political Geography
SS 4119	Arms Control and Disarmament
SS 4279	US and International Politics

ECONOMICS

SS 4139	Gender and Development
SS 4147	Development and Planning
SS 4181	Capabilities and Human Development
SS 4281	Fiscal and Monetary Economics
SS 4261	Mathematical Economics
SS 4183	Industrial Economics
SS 4284	Trade Economics
SS 4128	Agriculture Economics
SS 4182	Game Theory
SS 4283	Labour Economics
SS 4282	Growth
SS 4184	Poverty and Inequality
SS 4228	History of Economic Thought
SS 4249	Pakistan Economy
SS 4251	Sustainable Development

SINDH STUDEIS

SS 4188	Geography and Geology of Sindh
SS 4287	History and Politics of Sindh
SS 4288	Irrigation System of Sindh
SS 4185	Agriculture in Sindh
SS 4285	Archaeology of Sindh
SS 4186	Anthropology and Culture of Sindh
SS 4286	Art and Architecture in Sindh
SS 4187	Ethnomusicology of Sindh
SS 4289	Sindh's Economy and Commerce
SS 4292	Survey of Sindhi Literature
SS 4189	Philosophy of Sindh
SS 4192	Sindh's Sociology I: Education and Language Policy
SS 4193	Sindh's Sociology II: Social Structures and Development
SS 4194	Sindh's Sociology III: Health, Gender, and Feminism
SS 4293	The Sindhi Diaspora
SS 4291	Sindh's Geopolitical Exigencies
SS 4191	Sindh's Botanical and Zoological Heritage

11.0 Appendix C - Major Requirements

11.2 Media Sciences

BACHELOR OF MEDIA SCIENCES (BMS)

Major Courses

Film & Television Production

MD 4765	Basic Lighting
MD 4726	Directing-I
MD 4825	Screenwriting
MD 4821	Cinematography
MD 4764	Production Design
MD 4724	Documentary Vision
MD 4868	Production Practices-III

Advertising Strategy & Design

MD 4736	Integrated Marketing Communication
MD 4739	Advertising Design and Concept
MD 4755	Brand Identity Management
MD 4782	Interaction Design
MD 4837	Media Planning
MD 4846	New Media Advertising
MD 4847	Copywriting

Journalism

MD 4757	Feature Writing-I
MD 4759	Editing, Subediting, and Design
MD 4783	TV Journalism
MD 4839	Reporting the News
MD 4859	Introduction to Photojournalism
MD 4864	Investigative Journalism and Crisis Reporting
MD 4879	Multimedia Journalism

12.0 Appendix D - Guidelines for Thesis

12.1 MEDIA SCIENCES

BACHELOR OF MEDIA SCIENCES (BMS)

Guidelines for Production Thesis

- Students are required to produce a short film or documentary of 10-20 minute duration. Students must take 6-7 relevant elective courses.
- Students are also required to develop a screenplay for the film. Students can use build on some exceptional projects/screenplay they developed for a course previously done. Screenplay will be developed through a process of research on situations, locations, and characters. The process must demonstrate involvement in the development of contexts, character bios, etc. Students will be required to work on screenplay in close coordination with the internal faculty and other fellow students who will guide them through critique in a weekly class. Students are required to submit all research/related work in a file along with a screenplay.
- Documentary students are required to do extensive research such as primary research, meetings with related experts, preliminary interviews, archival research, etc. All of this must be submitted in a research file.
- Students are supposed to show a grasp of different areas of production i.e. cinematography, production design, casting, editing, and sound design as a director of the project.
- Students are required to work in coordination with a team of students performing theirs roles as cinematographers, production designers, gaffers, producers, editors, sound technicians, etc. Only members of current student body – batchmates and juniors – can be a part of student's production crew. Any outside professional help will be penalized unless allowed by the advisor and the department. The advisor must approve shooting schedule and crew list. Advisor or faculty members or staff may visit shooting locations.
- Students are required to utilize the equipment available in the department. Use of some outside equipment will be permitted. Use of outside equipment will require consent and permission of the advisor.
- The advisor will review the editing process.
- Students will be required to have regular meetings with the advisor.
- DEADLINES will be strictly enforced.

12.0 Appendix D - Guidelines for Thesis

12.1 MEDIA SCIENCES

BACHELOR OF MEDIA SCIENCES (BMS)

Journalism Thesis Guidelines

Journalism students should take on a substantial theme on issues related to current affairs, international relations, and/or socio-cultural issues demonstrating multimedia, feature writing, investigative reporting, incisive interviewing, editorial judgment and compelling storytelling skills. The central focus should be on taking on a relevant journalistic topic of current and/or historical nature that requires substantial research and a critical analysis of the issues involved.
The project would include two components:

- Major component of the project should be an investigative or feature piece of at least 5000 words. The piece can also be subdivided into a series of articles or features of maximum five parts of at least 1000-1500 words each.
- Supplementary component should be multimedia elements incorporating video, stills and/or audio depending on the nature of the topic. Advisor will help decide on the number elements required for the second component.
- The final thesis should be presented as a combination of written and multimedia components in an online portal specifically devoted to showcase the project.

12.0 Appendix D - Guidelines for Thesis

12.1 MEDIA SCIENCES

BACHELOR OF MEDIA SCIENCES (BMS)

Guidelines for Advertising Thesis

- Students will be dealt with individually by advisors from the full-time faculty and will be free to chose their own topics, and must commit to either a strategy or design thesis at the very beginning of the semester. Students must take 6-7 relevant elective courses.
- There is a methodical, linear structure of deadlines and presentations that must be given to the advisors and students. The deadlines are:

  a) Research,

  b) Ideation & Concepts,

  c) Prototypes/Product Strategy (this covers Thesis I), and

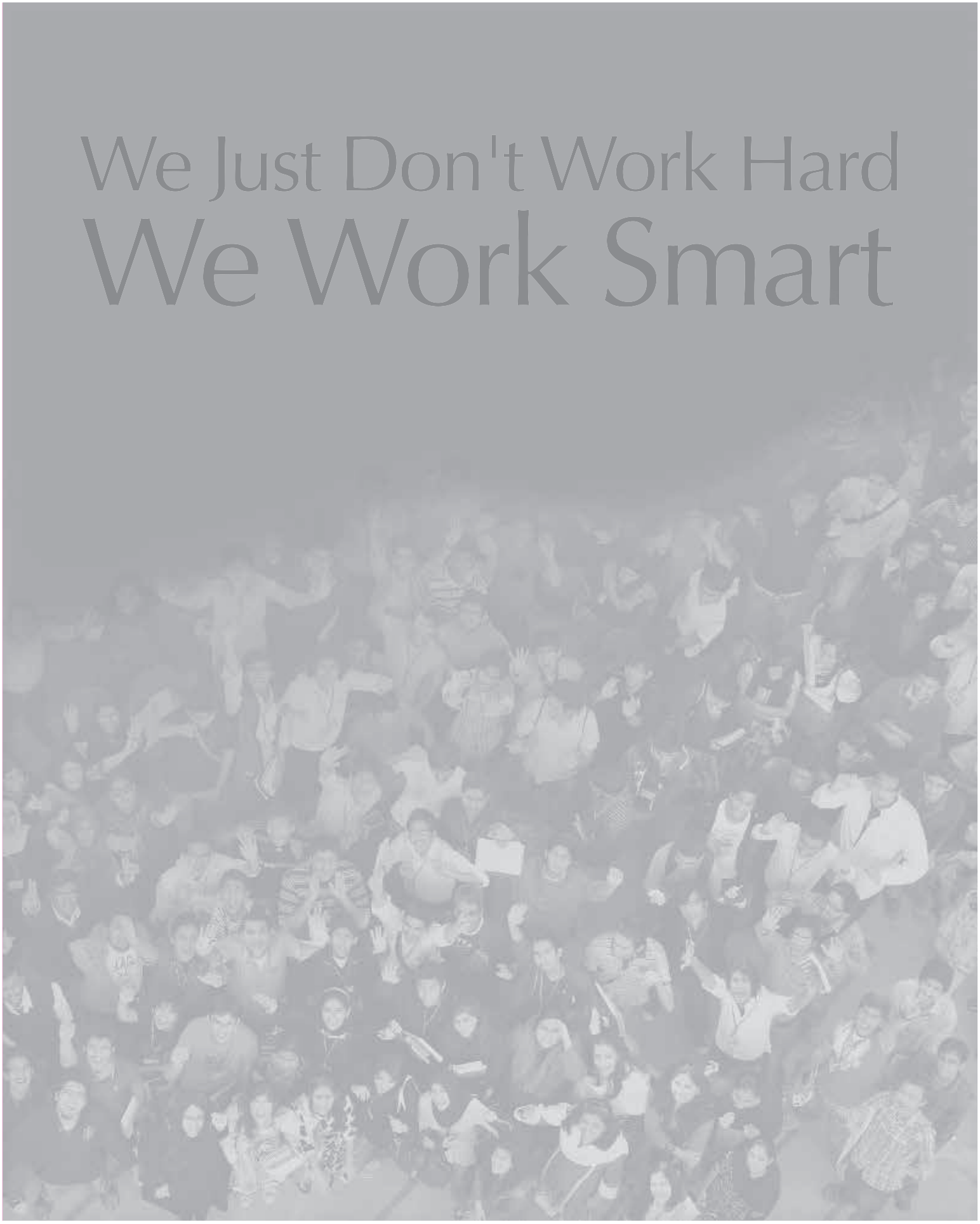
  d) Final Execution/Business and Marketing Strategy (Thesis II)

- Fulltime instructors will give all students a clear process and deliverables in the form of a brief for each step of the thesis and each deadline
- DEADLINES will be strictly enforced

Note:
Students must finish at least 38 courses out of 43 in order to enroll for thesis credits. Students on academic probation cannot enroll for thesis credits.

Thesis (6-credits) is offered over two semesters as Thesis I & II in the 8th (Spring) and the following summer semester respectively. Thesis I is pass/fail whereas in thesis II a grade is awarded to students. Final grade comprises 50% of advisors' grade and 50% of the average of 2-3 external jury members' grades.

We Just Don't Work Hard
We Work Smart



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