AMITY UNIVERSITY
HARYANA
Established vide Government of Haryana Act No.10 of 2010

(Accredited with Grade 'A' by NAAC)

(Supporting Documents of Metric No. 1.1.1)

1.1.1 - Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) of the Programmes offered by the University

Following Documents are Appended:

- Academic Framework Regulations
- Sample Syllabus of Course of Outcomes and Programme Outcomes

Academic Framework Regulations 2021-22

Achieving Excellence through Academic Innovation, Industry Integration and Information Communication Technology

AMITY UNIVERSITY HARYANA

These regulations apply to programmes of study offered by Amity University Haryana where delivery of the programme of study commences in the year 2021

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1. Amity - A Legacy of Excellence in Quality Education

Amity University Haryana is a part of India's leading education group, which has pioneered a global culture in education in India. Amity University Haryana is built on a foundation, which embodies all the qualities that have made Amity institutes world class. Over the years, it has instituted global standards in education, training and research with state-of the-art infrastructure, the latest teaching methodologies and its **digital initiative**. Amity University offers UGC recognized degree, valid across the world for job opportunities and higher studies. With the mission to train future leaders of the corporate, social and cultural world, the university strives to blend modernity with tradition in each of its students.

The University has 6 Faculty of Studies viz. (1) Faculty of Management Studies & Behavioural Sciences (2) Faculty of Science Engineering & Technology (3) Faculty of Arts (4) Faculty of Law (5) Faculty of Health & Allied Sciences and (6) Faculty of Architecture & Planning which have 17 Institutions **(Annexure-1).** For the session beginning 2021, the University offers 105 programmes **(Annexure-2).** As part of continuous improvement in providing quality education with focus on **flexibility and ICT enabled learning,** Amity University Haryana has introduced the **Choice based credit system** and integrated **ICT** in its academic framework.

2. Introduction to the Academic Framework

2.1 The purpose of the Academic Framework and Regulation is to ensure academic excellence and uphold the quality standards of the University through standardization of academic systems and processes and also to ensure equity, transparency and choice for students and staff.

2.2 The University operates on a credit based academic framework and has adopted the Choice based credit system (CBCS) or the Flexible Credit System as it is popularly called. Under this the students can register for courses of their choice and interest and alter the pace of learning within the broad framework of academic programmes and credit requirements.

2.3 The University may make changes to the Academic framework and regulations with the due approval of the Academic Council. These modifications may be necessitated from time to time due to reasons which include changes enabling new research to be brought into the curriculum, due to technological advancement, changes agreed in response to feedback received from stakeholders and those initiated by professional, statutory and regulatory bodies.

2.4 The academic framework has been created taking into consideration the UGC regulations.

2.5 There may be exceptions to the regulations in case of certain programmes which are governed by professional body's regulatory framework like programmes in Architecture, Nursing, Law, Audiology, Pharmacy, Clinical Psychology etc. The requirement of the regulatory body would take precedence in such cases. However, the University regulatory requirements need to be incorporated in the design and operations of such programmes to the maximum extent possible.

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2.6 **Definitions**

2.6.1 **Semester-** All Programmes under Choice based credit system shall adopt a semester system. There will be two semester in an academic year.The Odd Semester will be from July to December and Even Semester from January to June. Each semester will consist of 15-18 weeks of academic work.

2.6.2 **Summer Semester (Provision):** A summer semester is offered under a fast track mode, considering the less number of days available during the summer vacation. Unless otherwise specified explicitly, all rules and regulations applicable to a course offered during a regular semester is applicable to the course/ certification courses/ workshops offered during the summer semester. Like Odd and Even semesters, a separate semester Grade Sheet will be issued for the courses registered during the summer semester. Though courses will be offered during summer semester to help students to clear their backlog, it is not binding on the University to offer courses during summer.

2.6.3 **Academic Program-** This refers to a sequence of study i.e. a combination of courses leading to the award of a qualification such as an undergraduate degree or diploma postgraduate/ doctoral level qualification

2.6.4 **Choice Based Credit System (CBCS)-** The CBCS provides choice for students to select from the prescribed courses (core, concentration elective or open elective or skill based courses).

2.6.5 **Blended Learning Approach-** A blended learning approach combines online digital media with traditional learning methods for the teaching learning process.

2.6.6 **Massive Open Online Courses (MOOCs)-** These are online courses available for anyone to enrol with an object of providing an affordable and flexible way to acquire knowledge

2.6.7 **Course-** A distinct unit of study within a program (also referred to as subject) which is evaluated and credits are earned. Each course is completed in a semester and is identified by a unique code. A course can have one or more of the following components associated with the teaching learning process.

(i) Lecture-L

(ii) Tutorial-T-Tutorial sessions will primarily involve participatory discussion, doubt clearing, flipped classroom, student led seminars, lecture demonstration, blended learning pedagogy in classroom and problem solving or any other method which facilitates the student to absorb more effectively the contents delivered in the lecture session.

(iii) Practical-P-Practical session consist of hands on experience/ Laboratory experiments that equip the students to acquire the skill component.

(iv) Clinical/ Field Study/ Self Study

2.7 **Different courses of study can be labelled as follows**

2.7.1 **Core Course-** A course which should compulsorily be studied by every candidate, who is enrolled for a particular academic program, is referred to as a core course.

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2.7.2 **Concentration Elective-** These are courses which can be chosen from a pool of courses in related areas which give the student an in-depth understanding of his core area. These courses can also be referred to as depth courses. These may also include discipline specific workshops, projects or certification courses.

2.7.3 **Open Elective-** An elective course chosen generally from an unrelated discipline / area with an intention to give a student exposure and a broader perspective. These courses may also be referred to as breadth courses.

Note: ***A core course in a program may be an open elective for another program.***

2.7.4 **Non Credit Course-** These are courses which a student has to successfully complete to get his degree. However such a course does not contribute towards the credits earned by the student. For non-credit courses, evaluation will be done but no credit units will be assigned. They will be reflected in the grade sheet with result as "satisfactory" or "Unsatisfactory".

2.7.5 **Self Study Courses-**These are courses which a student studies on his own with advisory support from a teacher. These courses generally support or supplement the other courses by helping the student acquire special or advanced knowledge. These courses include projects, term paper, readings etc.

2.8 **Syllabus -** A course syllabus is a detailed course descriptor that explains what a student is going to study in that course. Each course will have a course code, course title, LTP (Lecture, Tutorials, Practical), course prerequisites (if any), course objectives, suggested text and reference books, and the mode of evaluation adopted.

2.9 **Course Manual-** A course manual consists of a list of lectures/ experiments carried out in each instructional class/ lab by the course teacher during the semester as per the LTP of the course, with details like course objective, learning outcome, mode of delivery, reference material used, and the detailed session plans etc.

2.10 **Programme Duration-** The minimum duration of a programme generally students are expected to take is given in **Annexure-2**. All programmes come to an end when the student earns the minimum course and credit requirements as specified by the programme curriculum concerned. However, degree will be awarded only upon the completion of the minimum duration of the programme.

2.11 **Credits-** These are numeric values of individual courses which contribute to the total credit requirement of an academic program. 1 credit represents atleast 12 study hours with a student.

e.g. A student enrolled in MGT2151 (3 credits) will spend a minimum of 36 hours for this course in a semester.

2.11.1 **Credits for a course can be calculated as follows:**

(i) One lecture (L) hour per week should be counted as 1credit per semester

(ii) One tutorial (T) hour per week should be counted as 1 credit per semester

(iii) Two practical/laboratory/workshop/ Field work (P)per week should be counted as 1 credit per semester

(iv) For Clinical Practice 24 hours per semester to be counted as 1 credit per semester.

(v) One studio per week should be counted as 1.5 credit per semester

2.12 **Major/Minor Credential-** Additional credits acquired in focused discipline other than his/her major programme discipline entitles a student to get a 'Minor' credential. Schools offering various programmes can offer 'Minors' in their disciplines, and will prescribe what set of courses and/or

projects are necessary for earning a minor in that discipline. A major is an area in which you choose to concentrate most of your studies.
e.g. Management Studies, Journalism, Civil Engineering. A minor is a secondary area of concentrated study that relates to the major or is of purely personal interest.

3. Choice Based Credit System/ Flexible Credit System

3.1**Background-** Achieving **academic excellence** expresses the core philosophy at Amity University Haryana and this is the driving force behind rigorous academic programmes and high quality teaching which instil a spirit of learning amongst students. Our academic processes focus on

- A high level scholastic achievement
- An involving attention to detail.
- Quality Research and innovation.
- Advanced critical analysis

Amity University Haryana has the vision to develop as an **Industry Integrated University** We believe in learning that takes students beyond the classroom and into the real world where they must use instinct, negotiating skills, collaboration and experiential learning with innovation.

Our pedagogy offers the opportunity to explore intellectual possibility. A coherent, integrated curriculum is the backbone. It challenges the young Amitian to risk an opinion, to listen to the voice of others, to explore intellectual pathways and to discover new academic passions.

Our academic processes need to be aligned with our philosophy of achieving academic excellence and vision of being an Industry Integrated University. **The introduction of the Choice based Credit System/ Flexible Credit System** in the form of Flexi Learn from January 2013 is a step towards the same. The flexible credit system focuses on leveraging the talent and innovative capabilities of the budding professionals to meet the needs of the contemporary dynamic business environment thus making the student more industry ready.

3.2 **What Choice Based Credit System Means**
Choice based credit system offers **cross programme education** i.e. it allows students to opt for courses cutting across disciplines. This enables the students to acquire a more holistic perspective and thus have better understanding of issues. The student has flexibility as he has a wide option of courses to choose from. For example a student pursuing BA Economics Honors can now choose courses from disciplines other than Economics like a course in Photography or Animation. Flexible credit system also permits credit transfers and earning credits through MOOCs and live projects. It gives the students the flexibility to **design their own degree**.

3.3 **Objectives of the Choice Based Credit System**

(i) A multi disciplinary and application oriented focus is expected to make the student industry ready.
(ii) The student will be able to build on his strength areas by choosing courses in areas which interest him.
(iii) Develop innovative and creative skills by giving the students a wider perspective through a wide array of course offerings

3.3.1 **Highlights of Flexi Learn**

(i) The course delivery is a perfect blend of

- Blended learning
- Classroom contact sessions
- Workshops/ Seminars/ Certification programme
- Substantial project work and Assignments with industry relevance

(ii) **Value added courses:** Students have the option of choosing value added courses during the course of their programme. These are courses in various areas which help students get an edge over others and contribute towards their overall holistic development. For example the students can choose from the following foreign languages- French, German, Spanish, Russian, Chinese, Korean & Japanese (30 to 36 contact hours per semester).

(iii) **Study Abroad Program-**The student has the option of earning credits through a well designed 4 – 6 weeks study abroad program which helps the student to get global exposure.

(iv) The courses belong to areas which are important for the holistic development of an individual. These areas includes

- Values and ethics
- Environmental Issues
- Technology
- Communication
- Cross Cultural exposure

3.4 **Flexibility-** Under the CBCS the student has the following options

(i) Option of choosing a minor along with the major area of study.

(ii) Allow credit transfer from one programme to another (in case the student decides to shift) – subject to meeting the eligibility criteria.

(iii) Freedom to choose courses from other programmes.

(iv) Earn credits through live projects/ community projects/ workshops.

(v) Option of taking a break after diploma and then continuing to earn a degree.

(vi) Transfer credits to other universities (in case of twinning programme with universities abroad)

(vii) Course credits through MOOC's

3.5 **Structure of Choice Based Credit System**

To successfully earn a degree a student has to complete certain fixed number of credits. These credits can be earned through the following categories of courses

3.5.1 **Core courses-** Every semester a student compulsorily takes these courses. These courses may include compulsory summer internships and projects, dissertation, field study/ clinical exposure etc.

3.5.2 **Concentration Electives-** These are courses in related areas which a student takes to get a deeper understanding. A student can choose his subjects from a list of subjects available to him. However a **minimum cohort of 10 students** in a subject is mandatory to run a course.

These courses also include Projects, Workshops/ Certification (Discipline specific), Term papers and Study Abroad Program (4-6 weeks)

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3.5.3 **Open Electives-** These are the courses being offered across the university by any of the schools/Institutes. The following open electives are compulsory for all students

(i) Foreign Language – A student can choose from the following languages- French, German, Spanish, Russian, Chinese, Portuguese, Korean & Japanese

(ii) Courses in Behavioural Science (1 Credit per semester)

(iii) Courses in Communication Skill (1 Credit per semester)

(iv) Environmental Studies (for all UG programs)

In addition to the above courses the student can choose from a list of courses being offered by other schools/ centres of excellence. A student has to earn 3 credits per semester from these courses. These courses have been grouped into various tracks and if a student earns **18 credits** from courses in a particular track he/she is eligible to get a **minor** in that track area. For example if a student follows the Animation track and chooses one course each semester for 6 semesters from that track , at the end of the programme he will get a B.A. (Honors) degree with a minor in Animation. The list of minor track areas as mentioned in **Annexure-3**

3.6 **Foreign Language Level Based Courses:**

3.6.1 The level-based courses were introduced in the Academic year 2012- 13, wherein the students simultaneously get prepared for international accreditation. These level based courses are designed with the dual purpose of providing a uniform, transparent and coherent basis for elaboration of foreign language syllabus across all languages taught in AUH and follow the course books prescribed by CEFR and assessment pattern similar to that of the international accreditation in Foreign Languages. The Common European Framework of Reference (CEFR/CEF/CEFRL) is also intended to make it easier for educational institutions & employers to evaluate the qualification of candidates to educational admission or employment. The levels of proficiency achieved by the students after Sem-3 (PG) and Sem-5 (UG) are as follows:

Language	**PG Level** **Foreign Business Language (FBL)**	**UG Level** **Foreign Language (FL)**
Chinese	HSK level 1+2 after sem-3 PG courses	HSK level 3 after sem-5-7 UG courses
Korean	Korean(Topik) Level 1+2 after sem-3	Korean Level 1+2+3 After sem-5
Russian	Russian Level 1+2 after sem-3	Russian Level 1+2+3 After Sem-5
German	European frame work Level A1+A2 after sem-3.	European Frame work level A1+A2 after sem-5. The book prescribed for general students is more exhaustive, needs more teaching hrs and hence students attain A2 proficiency level only.
Spanish	European Frame work level A1+ A2 after sem-3	European Frame work level A1+ A2+B1 after Sem-5
French	European Frame work Level A1+A2 after sem-3	European frame work level A1+A2+B1 after sem5

(i) Chinese Government has revised the syllabus and made it as per the European Frame work Syllabus into 6 levels, it calls it Hanyu Shuiping Kaoshi (HSK) Chinese language level examination. Similarly Russian, Korean have also revised their language proficiency levels into 6 levels and have given different nomenclature.

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(ii) According to the Common European Framework of Reference (CEFR/CEF/CEFRL) a student is required to complete 180-200 hrs to attain A2 proficiency in the given language. FL is a 3 credit course in the first two semesters and a 2 credit course then onwards. Since each class is held for 55 minutes, we are able to attain only A2 level in German.

(iii) The Korean language falls outside the purview of the European framework for language proficiency. The Korean government conducts proficiency exam for the desiring students. It is divided into two levels- TOPIK 1 and TOPIK 2. These levels are further divided into 6 levels,1,2 under TOPIK 1 and 3, 4, 5 and 6 under TOPIK 2. By the end of the UG foreign language course, the student attains Level 3 of TOPIK 2 as per the Korean proficiency prescribed by the Korean government. By the end of the PG course, the student attains Level 2 of TOPIK 1.

3.7 **Industry Integration and Research Orientation**

3.7.1Keeping in line with our philosophy of being an **industry integrated and research oriented university** the curriculum is so designed that the students are exposed to an industry and research environment through live projects, summer internships, term papers, field visits and dissertations. These form an integral part of the curriculum.

3.7.2 **Summer/ Industrial Internship-** During their tenure in the University, students get exposure to academic environment which is different from the environment at the industry, wherein they are expected to be placed. To get this exposure, all students should undergo four/six/eight weeks of industrial internship for UG and six to eight weeks for PG in a reputed industry in their respective branch. During the training, the student is expected to maintain a log of their activity and learning. At the end of the training, a report along with a completion certificate from the Industry where he/she had received the training is to be submitted to the Faculty Coordinator of his/her programme for evaluation.

3.7.3 **Student Project -** Students are expected to carry out an innovative project work in or related to the specialization of the programme by applying the knowledge they have gained in the courses/ labs. Depending on the nature of the project work, an individual student or a group of students may carry out the project within the University or outside, viz. in an industry, private/ government organization, or academic/ research institution. Each student will be assigned a faculty member as mentor within their School. In suitable cases, with the permission of Programme Coordinator, the student may opt for a guide outside their School also. The final project report will be evaluated by a panel of examiners consisting of Faculty Mentor, Industry Mentor (in case applicable) and two faculty experts.

3.7.4 **Dissertation-** Dissertation forms a part of the curricula of the final semester for most of the programmes. However to further promote a research culture resulting in meaningful research outcomes it is proposed to commence work on the dissertation at the end of the first semester under the guidance of a mentor. Also for **all Masters level programmes** it would be mandatory to have the dissertation resulting in atleast **one research publication which would form a part of the evaluation scheme (Upto a maximum of 10 weightage marks can be allotted to research publication).**

3.7.5 **Interaction with industry expert to be integrated with curricula-** The enclosed strengthening the students orientation towards research and industry with an objective of to make

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them more employable it is important that the students interact with experts from the industry on a regular basis. Experts from industry and academia can interact with the students during Guest lectures, Corporate Connect and Distinguished Speaker sessions. It is mandatory that **two sessions per course be taught by experts from the industry**. The topics have to be identified and clearly specified in the **course manual**. Also the **assessment of learning** from this interaction has to form a part of the overall internal evaluation. This interaction has been formalized by integrating it with the curricula.

3.8 Credit Requirements

The credit requirement for the various programs is as follows:

Credit Requirements

Programme	Credit requirement
3 year UG programme	150 credits
4 year UG programme	210 credits
4 year B.Tech programme	195 credits
5 year integrated UG programme	280 credits
5 year integrated (B.Tech. + M.Tech.) programme	260 credits
5 year integrated (B.Sc. + M.Sc.) programme	250 credits
1 year diploma	55 credits
1.5 year diploma	85 credits
2 year postgraduate programme	100 credits
2 year MBA programme	110 credits
3 year post graduate programme	170 credits
3 year part-time PG programme	90 credits
2 year M. Phil programme	130 credits

* 253 credits for Bachelor of Planning programme
* 290 credits for Bachelor in Audiology & Speech Language Pathology
** 279 credits for Bachelor of Architecture programme
*** 234 credits for Bachelor of Pharmacy programme

The Credits for B.Sc (Nursing), B.Sc (Nursing) Post Basic & M.Sc. (Nursing) are regulated by Indian Nursing Council (INC)

3.9 Course Coding System

Each course is identified by a unique alphanumeric code. The coding system as mentioned in **Annexure-4** is applicable to all courses being offered by the university

(i) The course code comprises of 7 characters (3 alphabetical and 4 numeric)

(ii) The 3 alphabetical characters represent the discipline to which the course belongs and are referred to as **discipline descriptors**. **Annexure-4** shows the disciplines and the discipline descriptors along with the name of the school under which the particular discipline falls the end.

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(iii) The 1st numeric character represents the level of the programme in which the course is being offered i.e. whether it is a Diploma /undergraduate /postgraduate or a doctoral level programme. It will be referred to as the **level indicator**

0- Certificate level
1- Undergraduate Diploma Level
2- Undergraduate level
3- Postgraduate Diploma level
4- Postgraduate level
5- MPhil/ doctoral level
6- Both UG and PG level

(iv) The 2nd numeric character represents the semester in which the course is being offered. This is referred to as the **semester indicator**.

1-Semester 1
2-Semester 2
3- Semester 3
4-Semester 4 and so on
For a five year programme the tenth semester is represented by the digit 0

(v) The 3rd and 4th numeric character represents the course.

-The series from 50 onwards is reserved for courses being offered as open elective
-The following numeric's are reserved for the given courses
Readings- *****30
Term paper - *****31
Project *****32
Workshop *****33
Study Abroad *****34
Summer Project/ Summer Internship/ Training - *****35
Article Writing/Portfolio *****36
Internship/ Dissertation *****37
Seminar ******38
Research Publication ****** 39

(vi) No course code should be repeated

(vii) The same course being taught in different programmes of the same level should have the same code

(viii) In case a course appears in two different semesters of two programmes within a discipline then the code of the course in the programme to which it primarily and logically belongs will be considered.

Illustration

MGT2101- Management Foundations

The course is a management course being offered by Amity Business School at UG level in the 1ST Semester

ANI2301- 3D Software

The course is an animation course being offered by Amity School of Communication at UG level in the 3rd Semester

3.9.2 **Introducing New Courses/ Revising Existing Courses**

The courses are designed as per needs of the industry and other organizations offering employments to the students of the University. The new courses are created based on the feedback received from various stakeholders including faculty, students, academic experts and industry. A committee at the level of the department constituted for proposes the new courses or proposes revision of the existing curriculum.

The new course/revised course is discussed by the area experts and preliminary draft prepared. The preliminary draft of the course is placed in the meeting of **Board of studies** for discussion and modification. The curriculum finally approved by the board of studies is send for approvals to the academic office were in after approval the course is allotted the code.

The new/revised course duly assigned code is placed before the **Academic Council** for the final approval.

3.9.3 **Constitution of Board of Studies**

Board of Studies is to be constituted at the school/institute level. However in some cases the board of studies may be constituted at the **Faculty** level. The board of studies is required to have the following composition:

Director	Chairperson
All Professors	Members
1 Associate Professor	Member
1 Subject Expert	Member
1 External Expert	Member

3.9.4 **Introducing new discipline descriptors**

Whenever a school needs to introduce a new discipline descriptor approval has to be sought from Dean Academics. The following information must be included in the submission:

(i) proposed alpha code;
(ii) statement of justification;
(iii) academic organization (school or organizational unit that will be responsible for administration of the courses under this discipline.

3.10 **Grading System**

The level of student's academic performance as the aggregate of continuous evaluation and end term examination shall be reflected by letter grades on a ten point scale according to connotation as given below

Connotation

Grade	Qualitative meaning	Grade Point Attached
A+	Outstanding	10
A	Excellent	9
A-	Very Good	8
B+	Good	7
B	Above Average	6

B-	Average	5
C+	Satisfactory	4
C	Border Line	3
F	Fail	0

The semester performance of a student will be indicated as "Semester Grade Point Average (SGPA).The SGPA will be weighed average of Grade Points of all letter grades received by a student for all the course units in the semester. The formula for computing SGPA is given below

$$SGPA = \frac{U_1G_1 + U_2G_2 + U_3G_3 + ----------}{U_1 + U_2 + U_3 + ----------}$$

Where U_1, U_2 , U_3 denote credits associated with courses taken by the student and G_1,G_2,G_3 are the Grade Point of the letter grades awarded in the respective Course.

CGPA is not applicable in first semester. CGPA is calculated on the basis of SGPA.

For example in II Semester the formula for CGPA is

$$CGPA = \frac{\text{Cumulative points secured in all passed course in I \&}\mathit{IISem}}{\text{Cumulative Associated Credit Units in I \&}\mathit{IIsemesters}}$$

The successful candidates shall be placed in Divisions as below:

CGPA	EQUIVALENT DIVISION
8.5 & above	First class with Distinction
6.5 but less than 8.5	First Division
5.5 but less than 6.5 for UG programmes	Second Division
6.00 but less than 6.5 for PG programmes	Second Division

4. ICT Enabled Learning

4.1 Under the digital initiatives of Amity University Haryana, the teaching –learning processes of the University focus on the use of ICT. This is done with an objective of shifting the focus from a **teacher centric learning** process to a **student/ learner centric** learning process. Such an approach caters to the diverse needs of students allowing the students to engage in

Choice
Collaboration
Communication
Critical thinking
Creativity
Change

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4.2 **Blended Learning Approach**

4.2.1 A blended learning approach combines e-learning through online digital media with traditional classroom methods and independent study to create a new hybrid teaching methodology with an objective of increasing the student engagement and bringing in flexibility in the teaching learning process. It represents, in many cases, a fundamental change in the way teachers and students approach the learning experience

4.2.2 The introduction and use of **digital platforms** provides a flexible approach to teaching and learning. Digital learning platforms include personalized learning technologies embedded around a digital text book and can be customized by faculty to suit the needs of a specific class. They can be used on any device and involve quizzes, problems and games to keep students interested in the topic.

4.2.3 Through this interface the students are **more engaged**, get **immediate feedback**, have better **retention** and are easily able to build a foundation of knowledge by learning new concepts. An additional innovative feature of these platforms is the use of **adaptive learning technology** wherein the lessons are individualized to assess the students knowledge and assess them with concepts they need help with.

4.2.4 A course created in a blended learning model uses the classroom time for activities that benefit the most from direct interaction. Traditional education (especially at the college level) tends to place an emphasis on delivering material by way of a lecture, while in a blended learning model lectures can be videotaped ahead of time so the student can watch on their own time. The classroom time is more likely to be for structured exercises that emphasize the application of the curriculum to solve problems or work through tasks.

4.2.5 During the blended learning session the teacher has to play the role of a facilitator of student learning by stimulating and challenging the students towards meaningful learning.
Facilitators focus on the following key areas:

(i) Development and compilation of online and offline course content.
(ii) Guiding the learning experience of individual students, and customizing material wherever possible to strengthen the learning experience.
(iii) Assessment

4.3 **Blended Learning and other Student Centric Pedagogical Tools**

Blended learning has three primary components:

(i) In-person classroom activities facilitated by a trained educator.
(ii) Online learning materials, often including pre-recorded lectures
(iii) Structured independent study time guided by the material in the lectures and skills developed during the classroom experience.

Following are some the blended learning and student centric pedagogical tools which faculty can choose from to include in their teaching pedagogy

4.3.1**MOOCs**– Massive Open Online Courses -. These are online courses available for anyone to enrol with an objective of providing an affordable and flexible way to acquire knowledge
In addition to traditional course materials such as filmed lectures, readings, and assessment material, many MOOCs provide interactive user forums to support community interactions among students and the faculty.

Through MOOCS students have access to the expertise of eminent faculty from across the world resulting in enhanced academic rigour

4.3.2 **Flipped Classrooms** – It reverses the traditional approach to learning. Students watch the learners videos in their own time and space, giving them opportunity to work at their own pace. It also allows time in the classroom to be used in critical thinking

It is an activity that allows learners to occupy center stage in the learning process. Also this technique better utilizes the time of faculty-learner interaction. The learners become aware of the basic concepts through introductory videos and in the classroom they are able to participate and finally discover outcomes by giving a meaning to their experience.

4.3.3 **Teach-back/ Student led Seminar**

Teach Back means 'Learn by explaining to other people what we think we know'. Teach back is a method of instruction in which learners make an oral presentation followed by discussion on a specific topic. Such seminars are more interactive than a lecture. For this mode of instruction to be effective, it is suggested that the faculty makes it as interactive as possible.

Overall Objectives of Learner Led Seminar Techniques/ Teach Back

(i) To facilitate learners to understand the method of studying a topic/subject.

(ii) To encourage learners to think about practical problems that may come up with a particular topic.

(iii) To encourage learners to become independent and autonomous learners.

4.3.4 **Simulation** – These techniques can be used to teach many topics in engineering and social sciences. Simulation help in replicating real life situations to help the students experience the actual situation they would be facing.

4.3.5 **Brainstorming/Problem solving** – Brain storming is a technique used to generate large number of ideas.The technique was devised by Alex Faickney Osborn and was widely used by business managers to generate ideas and to find out creative ways of resolving management crisis around 1930s. Now the technique is also being used for teaching/learning, with certain modifications.

There are two types of brain storming (based on the number of participants):

4.3.6 **Case Study** – A Case Study is an open-ended actual story. It brings chunks of reality into the classroom.

(i) This method is used for solving a difficult problem or in case of a dilemma without an obvious solution.

(ii) It forces us to deal with a real life situation where we have to answer:"What do we do now?"

(iii) The case study should be:

(iv) Context-based, relevant and involve relatively realistic scenario or situation or problem.

(v) Challenging but not too frustrating a problem, task, or situation.

(vi) An open-ended problem or situation that requires careful formulation (one should definitely be able to find a solution).

(vii) A problem or situation that motivates the learner to explore, investigate, and study.

(viii) A problem or situation that encourages interaction: among learners, learners and facilitator, between learner and the outside resources.

Overall Objective of Case Study Method

- To offer a less instructive approach to teaching
- To stress on the development of learners' communication and higher order thinking skills
- To encourage learners to engage in critical analysis and ensure active learner participation

4.3.7 **Mini Survey/ Projects** – Survey research is one of the most important areas of measurement in applied social research. The broad area of survey research encompasses any measurement procedures that involve asking questions of respondents. A "survey" can be anything from a short paper-and-pencil feedback form to an intensive one-on-one in-depth interview. Similarly small projects with the industry support can help students understand the application of the concept.

4.4 Integrating blended learning in the teaching learning process

4.4.1 Faculty need to ensure that blended learning forms an integral part of the teaching learning process

4.4.2 The part of the course delivery to be done in blended learning / hybrid teaching learning approach should be reflected in the session plan being prepared by the faculty.

4.4.3 The faculty can decide on the **blended learning techniques** to be used in the class based on their suitability to help students understand a particular topic. For example for a course in psychology the students may be required to take up a related MOOC course. However the technique to be used has to be pre-decided and clearly mentioned in the session plan. Also availability of necessary resources in the form of relevant material required like videos, case studies etc should be ensured.

4.5 **Assessment Process-** Every faculty needs to design a well thought of **Assessment / Evaluation Process** which takes into consideration all the pedagogical components. The assessment should be such that the student performance is evaluated against the learning outcomes. . For example if a student goes through a MOOC to study a specified topic, a quiz or a problem solving exercise can be conducted by the faculty to assess the learning outcome.

4.6 **Pedagogical Training-** Faculty development programmes need to be conducted in the innovative pedagogical techniques, preparation of course manual and student assessment under the blended learning approach.

4.7 **MOOCs Resources**

A comprehensive list of MOOC resources will be available with the respective institutions. These include the UGC approved MOOCs courses June 2017 available on the Swayam Platform in the UGC website. Faculty can recommend these courses to the students and also included them in the course manual. Credits earned through these MOOC courses can contributed of the related course offered under the programme by the University. **(Annexure-5)**

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5. Course Manual

5.1**Course Manual**- A structured comprehensive course manual is to be designed for each course by the faculty. The course objective and learning outcomes of the course should be clearly specified. The course manual l serves as a planning document for the faculty and help in delivery of the course contents in an organized manner. It also helps the student to come prepared for the classes so that maximum benefit can be derived from the class time The format to be followed is attached in **Annexure-6.**

5.2 The course Manual has to be submitted to the respective HOI's/HODs for an audit so as to ensure that the academic rigour is maintained in the teaching learning process.

5.3 Guidelines for preparing the Course Manual

5.3.1 Course Manual needs to be prepared for all **theory and practical courses**. However, this excludes all NTCC (Non Teaching Credit Courses) viz. Term Paper, Dissertation, Summer Training Evaluation, Project, Workshop, Research Paper, Study Abroad Programme.

5.3.2**For blended learning and student centric approach** faculty may use one or more from the various techniques like MOOCS, Day with expert, Case Study, Teach Back, Quiz,Mini-Survey,Simulations/Games,Brain-Storming/Argumentation,Flipped classroom. However, this list is not exhaustive. Faculty may use any other suitable pedagogical technique to ensure optimal learning.

5.3.3 Keeping in line with philosophy of AUH of being an **industry integrated university** it is important that the students interact with experts from the industry on a regular basis. As previously stated in 3.7.5 two **sessions per course be taught by experts from the industry**. The topics have to be identified and clearly specified in the course manual. Also the **assessment of learning** from this interaction has to form a part of the overall internal evaluation.

5.3.4 The course manual should contain relevant study and reference material including cases, additional readings, as an annexure, URLs etc

6 . Admissions

The University has developed an industry collaborative admission process, wherein, industry experts from different verticals are involved in the various stages of admission process to select students with right aptitude who would be future professionals. Therefore, the admission process is designed keeping in mind the aptitude required for a particular program which varies from program to program comprising of an English proficiency test, written test and/or Group discussion and Personal Interview.

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Due weight age is also given to the previous academic performance of the candidate. Candidates with excellent academic record are eligible for meritorious scholarship with an exception to appear in the selection process.

The whole admission process is fully automated and comprises both Computer Based Test (CBT) and Paper Based Test (PBT), wherein, written test is conducted in various test centers across the country and Personal Interview is conducted through Video Conferencing, which gives greater flexibility to the candidates appearing in the admission test. The candidates interface with the University through an intranet based platform' Amizone', starting from filling online application forms, submission of forms, selecting Interview test dates, their selection/rejection, admission offer letter and all other important information pertaining to their admission process. They also have facility to make online payment of fee

7. Course Registration

7.1 All students are required to fill the Student Profile Sheet as given in **Annexure-7** at beginning of the Programme. It is also mandatory for all students to register every semester till the end of his/her study, for courses that he/she is going to study in the semester through a Course Registration process.

7.2 The Course Registration will be carried out on a specific day as declared by the University in advance. Students having any outstanding dues to the University shall not be permitted to register. For valid reasons, late registration for a maximum of two weeks from the commencement of the semester may be permitted only with the approval of the School Director concerned and on payment of a late Registration fee as specified by the University. Approval of Faculty Mentor is necessary for a student to undergo Course Registration.

7.3 Depending on academic and non-academic resources available to each programme, courses offered may vary. Upon joining the University, each student will be assigned a Mentor by the School concerned to support him in making the right choice of courses. The Mentor will discuss with the student on his/her academic performance in previous semester(s) and suggest the number and nature of courses to be registered in the ensuing semester, within the framework of that programme curriculum. Students having backlogs or under probation may get advice for pacing the programme.

7.4 **Process of selection of Open Electives**

(i) For first semester students at the time of orientation the student is asked to give his choice of open elective, foreign language and concentration elective The student also fills out a profile sheet which gives an overall perspective of the programme structure in terms of the credits he will be required to earn each semester through his core courses, concentration electives and open electives. . For open electives the student gives three choices. These choices are then verified by the programme coordinators, course is allocated to the student and from the HOI account the course is entered onto Amizone. These courses are then visible to the student in their respective Amizone account.

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(ii) For students of semesters other than the first semester the choices are taken from the students before they leave for the term break. This helps in finalizing the faculty allocation and time tables before the commencement of the new semester

(iii) The student has the **option of changing his open elective within three weeks of the commencement of the classes.** The attendance of the student is also transferred from the previously selected course to the new choice of course to prevent the likelihood of shortage of attendance.

8. Attendance

Students are expected to have 100% attendance. Relaxation of maximum 25% may be allowed to cater for sickness or other valid reasons beyond the control of the students. A student whose attendance is less than 75%, **whatever may be the reason for shortfall**, will not be permitted to appear in the End Semester Examination (ESE) for the subject in which the shortfall exists.
Under extreme special circumstances, Vice Chancellor may condone attendance up to 5% below 75% on the request of the student and the recommendation of the HOI's. Such students will fall under the B+ cap category, i.e., the student beyond B+ grade will be able to score a maximum of B+ grade in the said course for which he/she has been given the waiver.

The attendance will be marked in the attendance register as well as on the Amizone. It is important that the attendance on Amizone be marked by the concerned faculty within 48 hours of holding the class as the Amizone will be locked after this period.

Every teaching faculty handling a class will take attendance till the last day of the class. The percentage of attendance up to this day will be calculated and forwarded to Examination Department by the HOI for issue of Admit Cards. Computerized attendance monitoring system i.e., Amizone will be adopted for posting the attendance by the faculty.

If a student is continuously absent for a period of one week without permission by the HOI, a notice will be sent to the student and to his parents / guardian with intimation to Registrar. If a student remains absent continuously for 30 days without permission, his name will be struck off. Such a student may apply for re-admission. The HOI will examine his performance in all semesters and back log of papers and forward recommendations to Pro VC(A)'s office to decide as to whether he should be given re-admission or not. Based on the recommendations, decision for re-admission and the semester in which re-admission is to be given will be taken. The student granted re-admission will be required to pay the prescribed re-admission fee and will be governed by Academic Regulations. The attendance will be calculated from the commencement date of the semester and not from the date of re – admission.

8.1 Computation of Attendance

Attendance at lectures, tutorials, practicals, clinical, sessionals, if any, held during the academic session shall be counted. Attendance at Industrial Visits, NCC/NSS camp, Amity Cadet Corps/ Amity Military Training Camp, shall be taken as full attendance at lectures/ practicals/ tutorials on each such day of camp/ training and the days of journey to such camp/ training (excluding the period of holidays/vacations) .Participation as a member of the University/ Constituent Unit team in National or International competition games & sports and/or other extracurricular activities shall be

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taken as full attendance on the days of such competition and the days of journey for participating therein. This attendance will be over and above the Official Class Waiver.The minimum attendance required by the 'freshers' will be calculated from their date of registration into the course (instead of 1st Instructional Day), since few students may join late, only during the Semester they join the University. For the subsequent semester the first teaching day of the session would be considered for calculation of attendance.

8.2 **Attendance Shortfall**

A student, whose attendance is below 75%, will not be permitted to appear in the ESE and will be awarded 'DE'(F) grade in that paper and treated as Fail in that subject. 'DE'(F)/F grade students (Debarred due to shortage of attendance or Fail in a course unit) are required to repeat the course unit in the next corresponding semester and reappear in the normal schedule of ESE of that paper i.e. 'F' grade student of 3rd semester may reappear in that course unit in the 5th semester. The final year students who have obtained 'DE'(F) grade may apply to re-appear in those Courses of final two semesters only in the Special Supplementary Examinations to be held within 30 days of the declaration of Results.

8.3 **Official Class Waiver** (OCW)

8.3.1**Definition-** A student will be given an OCW (ie, he/she will be marked present) during teaching hours under the following conditions:

(i) Participation in conferences/seminars/workshops.
(ii) Participating in fests/competitions/ sports/cultural both within and outside the University.
(iii) Practice for fests/sports/cultural events etc.
(iv) Project and related activities.
(v) Any other activity deemed fit by HOI's.

8.3.2 **OCW will be approved under the following guidelines:**

(i) For 3 & 4 credit course a maximum of 3 classes can be waived off in a semester.
(ii) For 1 & 2 credit course a maximum of 2 classes can be waived off in a semester.
(iii) Five and more than five a maximum of 4 classes can be waived off in a semester

8.3.3 **Exception:**

In case of an emergency, if approval cannot be taken after advance submission of OCW slip or wherever submission of OCW could not happen, the approval may be taken within a maximum of 5 days from the availing of OCW from the Head of Institution. **No OCW request should be entertained subsequently.**

8.3.4 **Recommendation & Approval of OCW:**

(i) In all above-mentioned Official Class Waivers, the student has to fill-up the prescribed format for recommendation by the faculty deputing for the activity for final approval by Head of Institution.

(ii) The under-mentioned persons are authorized to recommend the OCWs for the approval of Head of Institution.

(a)Programme Director
(b) Head Corporate Resource Centre/Industry Interaction Centre/Amity Technical Placement Centre
(c)Programme Leaders/Programme Coordinators

(d)Faculty members acting as Event Coordinator
(e)Any other person nominated by the Head of Institution

The authorities mentioned above will ensure that all sanctions are obtained before the date of commencement of an event (baring exceptions).

8.3.5 **Process for approval of OCW:**

(i) The procedure to be followed for sanctioning of the OCWs will be as under:
(a)The OCW request will be initiated by student through faculty in-charge in advance before the activity takes place as per prescribed format.
(b)The student will submit the OCW Form to the person concerned who has assigned the work.
(c)Authorized person(s) upon checking the validity of the credits and no of classes allowed to be waived off, will recommend to Head of Institution for approval.
(d)The attendance related to OCW should be uploaded on Amizone from HOI's a/c within 24 hours of the class or within five days in case of an exception.

9. Examination

9.1 **Eligibility for Examinations**

All students who have registered for a particular course are eligible to write the exam, provided he/she is not debarred from writing the exam due to one or more of reasons listed below.
(i) Shortage of attendance
(ii) Acts of indiscipline
(iii) Withdrawal of a registered course

9.2 **Disciplinary Control of Students In Relation To University Examinations**

9.2.1 During examinations, the candidates shall be under the disciplinary control of the Examination Centre Superintendent who will issue necessary instructions. If a candidate disobeys instructions or misbehaves with any member of the supervisory staff or University Observer or representative or the invigilators at the Centre, he may be expelled from the examination for that session. The Examination Centre Superintendent shall immediately report the facts of such a case with full details of evidence to the Controller of Examinations who will refer the matter to the Examination Discipline Committee. The said Committee will make recommendations for disciplinary action as it may deem fit, to the Vice Chancellor.

9.2.2 The students shall maintain proper discipline and orderly conduct during the examinations. They shall not make use of any unfair or dishonest means or indulge in disorderly conduct in the examinations.

9.3 **Duration of Academic Programmes**

9.3.1 The minimum period required for completion of a programme shall be as specified in the Scheme of Teaching and Examination and Syllabi for concerned programme and approved by the Academic Council on the recommendations of the Board of Studies.

9.3.2 The maximum permissible period for completing a programme upto two academic years shall be **n+1** year (two semesters) and for the programmes of more than two academic years duration, the maximum permissible period shall be n+2 academic years (four semesters), where "**n**" represents the minimum duration of the programme.

9.4 **Award of Degrees, Diplomas, Certificates and other Academic Distinctions**

9.4.1 The text and the format of the degrees and diploma documents, certificates, citations and other documents of academic distinctions shall be as approved by the Academic Council. The nomenclature of Degree, Diploma, and Certificate etc. Shall be same as specified by the UGC, AICTE, NCTE, MCI, Pharmacy Council of India and such other Statutory Bodies.

9.4.2 The degrees, diplomas, certificates, citations and other documents relating to other academic distinctions shall be signed by the Registrar and countersigned by the Vice Chancellor. Provisional Certificates shall be signed by the Controller of Examinations.

9.4.3 A student shall be awarded a degree/diploma, if:

(i) He has registered himself, undergone the course of studies, completed the project report/dissertation / training report as specified in the curriculum of his programme within the stipulated time, and secured the minimum Grades prescribed for award of the concerned degree/diploma/certificate;

(ii) There are no dues outstanding in his/her name to the University/Department/ Constituent Unit; and

(iii) No disciplinary action is pending against him.

9.4.4 The Registrar shall place the particulars of all the successful and eligible students for the award of certificate, diploma, or degree before the Academic Council after declaration of results.

9.4.5 Approval accorded by the Academic Council for award of the respective degrees, diplomas, certificates etc. Shall be placed before the Executive Council for its concurrence. On being concurred by the Executive Council, the degree shall be awarded to the successful candidates at convocation

9.4.6 In extreme emergency, the degrees, diplomas, certificates shall be awarded to the successful students before the Convocation with the approval of Vice Chancellor and the matter be reported to the Academic Council.

10. Attainment Level Calculations

Evaluation of student performance in each course unit has two components (a) Continuous Evaluation (CE) and (b) End Term examinations (ET) which are held at the end of semester/year. The level of students' academic performance as the aggregate of continuous evaluation and end term examination is reflected by letter grades on a ten point scale according to connotations given below.

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Grade	Qualitative Value	Grade Points (GP)
A+	Outstanding	10
A	Excellent	9
A-	Very Good	8
B+	Good	7
B	Above Average	6
B-	Average	5
C+	Satisfactory	4
C	Border Line	3
F	Fail	0

Course credit units are integer numbers indicating the weightage assigned to a course unit, project, research work, summer internship etc. on the basis of contact hours per week on all learning activities.

Abbreviations used in calculation sheet:

CE: Continuous Evaluation

ET: End Term examinations

RT: Round Total

GO: Grade Obtained

GP: Grade Points

ACU: Associated Credit Unit

ECU: Earned Credit Unit

U1G1, U2G2,U3G3….. : ECUxGP

TUP (Total Unit points Earned) = U1G1+U2G2+U3G3…..

TAU (Total Associated Credit Units) = ACU1+ACU2+ACU3…….

TEU (Total Earned Credit Units) = ECU1+ECU2+ECU3…….

SGPA: The Semester performance of a student is indicated as "Semester Grade Point Average (SGPA). The SGPA is weighted average of Grade Points of all letter grades received by a student for all the Course units in the semester. The formula for Computing SGPA is given below:

$$SGPA = \frac{U_1 G_1 + U_2 G_2 + U_3 G_3 + \text{----------}}{U_1 + U_2 + U_3 + \text{----------}}$$

Where U1, U2, U3 denote credits associated with courses taken by the Student and G1,G2,G3 are the Grade Point of the letter grades awarded in the respective course.

Percentage of Weighted obtained grade points by the student = ((ECU x GP)/ (ACUx 10)) x 100

Percentage of Weighted obtained grade points of all courses in a programme by the student = ((TUP/(TAUx10))x100

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Course Outcome	Attainment level	Programme Outcome
% of weighted obtained grade points by the student =((ECU x GP)/(ACUx 10)) x 100		% of weighted obtained grade points of all courses in the Programme by the student = ((TUP/(TAUx10))x100
Less than 40	0	Less than 40
40-59.99	1	40-59.99
60-79.99	2	60-79.99
80-100	3	80-100

The above document contains the attainment levels at the following levels:

1. Course outcome attainment for each student in a programme
2. Course outcome for each course
3. Overall programme outcome

An analysis of the above will help identify the

(a) Course wise weak students
(b) Extent to which course contributes towards the programme outcome
(c) Courses where attainment level is low/ high so that appropriate measures be taken.

11. Amizone

Amizone is an open source e-learning software platform developed by Amity. This innovative and interactive portal connects the participants to their campus, faculty and other peers in the Amity University globally. All participants of Amity are provided with a Login ID and password for Amizone.

It is a powerful tool, which empowers every student with the most modem e-learning educational services like the following:-

(i) Students can view all academic information such as class schedules, exam schedules and assessment result regarding their respective courses through this portal.
(ii) Students get access to over thousands of world- class e-books and journals in the Digital Library of the portal.
(iii) Students can view archived classes (e-learning lectures) at any point of time and hence promotes the idea of 'Anytime and Anywhere learning'.
(iv) Regular feedback by students is collected and analyzed through the portal.

Flexible Credit System is fully operational through Amizone. Real time reports can be generated about the students registered in various courses.

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Annexure-1

AMITY UNIVERSITY HARYANA
LIST OF DEPARTMENTS / INSTITUTES

SL. NO	NAME OF DEPARTMENTS/ INSTITUTES
	(I) FACULTY OF MANAGEMENT STUDIES & BEHAVIOURAL SCIENCES
1	ABS - AMITY BUSINESS SCHOOL
2	ACC - AMITY COLLEGE OF COMMERCE
3	ASH - AMITY SCHOOL OF HOSPITALITY
4	AIBAS - AMITY INSTITUTE OF BEHAVIOURAL AND ALLIED SCIENCES
5	AICP - AMITY INSTITUTE OF CLINICAL PSYCHOLOGY
	(II) FACULTY OF SCIENCE ENGINEERING AND TECHNOLOGY
6	ASET - AMITY SCHOOL OF ENGNEERING AND TECHNOLOGY
7	ASAS - AMITY SCHOOL OF APPLIED SCIENCES
8	ASEES - AMITY SCHOOL OF EARTH & ENVIRONMENT SCIENCE
9	AIB - AMITY INSTITUTE OF BIOTECHNOLOGY
	(III) FACULTY OF ARTS
10	ASCO - AMITY SCHOOL OF COMMUNICATION
11	ASLA&FL - AMITY SCHOOL OF LIBERAL ARTS & FOREIGN LANGUAGES
12	AID - AMITY INSTITUTE OF DESIGN
	(IV) FACULTY OF LAW
13	ALS - AMITY LAW SCHOOL
	(V) FACULTY OF HEALTH AND ALLIED SCIENCES
14	AMS - AMITY MEDICAL SCHOOL
15	ACON - AMITY COLLEGE OF NURSING
16	AIP - AMITY INSTITUTE OF PHARMACY
	(VI) FACULTY OF ARCHITECTURE AND PLANNING
17	ASAP - AMITY SCHOOL OF ARCHITECTURE AND PLANNING

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Annexure-2

AMITY UNIVERSITY HARYANA
LIST OF PROGRAMMES

PROGRAMMES SESSION 2021-22				
Sl. No	**NAME OF PROGRAMME**	**PROGRAMME CODE**	**DURATION (YRS)**	**TOTAL CREDITS**
FACULTY OF MANAGEMENT STUDIES & BEHAVIOURAL SCIENCES				
AMITY BUSINESS SCHOOL				
1	Bachelor of Business Administration	13064	3	150
2	Bachelor of Business Administration (Banking & Finance)	13579	3	150
3	Bachelor of Business Administration (International) (Global Study Programme)	131100	3	150
4	Master of Business Administration	13019	2	110
5	Master of Business Administration (Banking & Finance)	13502	2	110
6	Master of Business Administration (Executive for Working Professionals)	13622	2	100
7	Master of Business Administration (Executive-Full-Time)	13339	1	90
8	Master of Business Administration (Hospital & Healthcare Management)	13395	2	110
9	Master of Business Administration (Business Analytics)	131108	2	110
10	Master of Business Administration (Sustainability Management)	131576	2	110
11	Bachelor of Arts (Hons.) (Economics)	13182	3	150
12	Master of Arts (Economics)	13301	2	100
AMITY COLLEGE OF COMMERCE				
13	Bachelor of Commerce (Hons.)	13046	3	150
14	Master of Commerce	13576	2	100
AMITY SCHOOL OF HOSPITALITY				
15	Bachelor of Hotel Management	13289	4	210
16	Bachelor of Tourism & Travel Management	13816	4	210
AMITY INSTITUTE OF BEHAVIOURALAND ALLIED SCIENCES				
17	Bachelor of Science (Clinical Psychology)	13407	3	150
18	Bachelor of Arts (Hons.) (Applied Psychology)	13069	3	150

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19	Master of Arts (Counseling Psychology)	13033	2	100
20	Master of Arts (Applied Psychology)	13166	2	100
21	Master of Science (Clinical Psychology)	13408	2	100
22	Master of Social Work	13202	2	100
AMITY INSTITUTE OF CLINICAL PSYCHOLOGY				
23	M.Phil. (Clinical Psychology)	13109	2	130
FACULTY OF SCIENCE ENGINEERING AND TECHNOLOGY				
AMITY SCHOOL OF ENGINEERING AND TECHNOLOGY				
24	Bachelor of Technology (Aerospace Engineering)	13055	4	195
25	Bachelor of Technology (Civil Engineering)	13158	4	195
26	Bachelor of Technology (Computer Science & Engineering)	13052	4	195
27	Bachelor of Technology (Computer Science & Engineering) International (Global Study Programme)	131095	4	195
28	Bachelor of Technology (Electronics & Communication Engineering)	13051	4	195
29	Bachelor of Technology (Biomedical Engineering)	13399	4	195
30	Bachelor of Technology (Mechanical Engineering)	13998	4	195
31	Bachelor of Technology (Electrical & Electronics Engineering)	13246	4	195
32	Bachelor of Technology (Artificial Intelligence & Machine Learning)	131325	4	195
33	B.Tech. + M.Tech.-Artificial Intelligence & Machine Learning (Integrated)	131326	5	260
34	B.Tech. + M.Tech.-Network & Cyber Security (Integrated)	131124	5	260
35	B.Tech. + M.Tech.-Data Science (Integrated)	131123	5	260
36	Master of Technology (Electronics & Communication Engineering)	13153	2	100
37	Master of Technology (Civil Engineering) (Specialisation: Structural Engineering, Construction Technology & Management, Environmental Engineering and Transportation Engineering)	13578	2	100
38	Master of Technology (Mechanical Engineering) (Specialisation: Thermal Engineering, Machine Design Engineering and Industrial & Production Engineering)	13581	2	100
39	Master of Technology (Data Science)	13684	2	100
40	Master of Technology (Artificial Intelligence) (Specialisation: Robotics and Machine Learning)	131448	2	100
41	Master of Technology (Network and Cyber Security)	131128	2	100

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42	Master of Technology (Defence Technology)	131588	2	80
43	Bachelor of Science (Information Technology)	13049	3	150
44	Bachelor of Computer Application	13048	3	150
45	Master of Computer Application	131450	2	100
46	Master of Technology (Solar &Alternate Energy)	13208	2	100
AMITY SCHOOL OF APPLIED SCIENCES				
47	Bachelor of Science (Hons.) (Chemistry)	13558	3	150
48	Bachelor of Science (Hons.) (Mathematics)	13556	3	150
49	Bachelor of Science (Hons.) (Physics)	13557	3	150
50	Bachelor of Science (Hons) (Forensic Science)	13059	3	150
51	Master of Science (Chemistry)	13509	2	100
52	Master of Science (Mathematics)	13510	2	100
53	Master of Science (Physics)	13500	2	100
54	Master of Science (Forensic Science)	13011	2	100
55	Master of Science (Biochemistry)	13690	2	100
AMITY SCHOOL OF EARTH & ENVIRONMENT SCIENCE				
56	Bachelor of Science (Hons.) (Earth Science)	13751	3	150
57	Master of Science (Environmental Science & Management)	13619	2	100
AMITY INSTITUTE OF BIOTECHNOLOGY				
58	Bachelor of Science (Hons.) (Biotechnology)	13044	3	150
59	Bachelor of Science (Hons.) (Biological Science)	13692	3	150
60	Bachelor of Technology (Biotechnology)	13041	4	195
61	Master of Science (Biotechnology)	13002	2	100
62	Master of Technology (Biotechnology)	13107	2	100
63	Master of Science (Data Science)	131177	2	100
64	Post Graduate Diploma (Data Science)	131345	1	55
FACULTY OF ARTS				
AMITY SCHOOL OF COMMUNICATION				
65	Bachelor of Arts (Journalism & Mass Communication)	13798	3	150
66	Bachelor of Arts (Journalism & Mass Communication) International (Global Study Programme)	131468	3	150
67	Bachelor of Science (Animation & Visual Graphics)	13493	3	150
68	Master of Arts (Journalism & Mass Communication)	13800	2	100
69	Post Graduate Diploma (Journalism & Mass Communication)	13347	1	55

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AMITY SCHOOL OF LIBERAL ARTS & FOREIGN LANGUAGES				
70	Bachelor of Arts (Hons.) (History)	13573	3	150
71	Bachelor of Arts (Hons.) (Political Science)	13574	3	150
72	Bachelor of Arts (Hons.) (English)	13061	3	150
73	Master of Arts (English)	13103	2	100
74	Bachelor of Arts (Hons.) (French)	13062	3	150
75	Bachelor of Arts (Hons.) (German)	13089	3	150
76	Bachelor of Arts (Hons.) (Spanish)	13063	3	150
AMITY INSTITUTE OF DESIGN				
77	Bachelor of Design in Fashion Design & Tech.	13817	4	210
78	Bachelor of Interior Design	13803	4	210
79	Bachelor of Fine Arts	13057	4	210
80	Master of Fine Arts	13010	2	100
FACULTY OF LAW				
AMITY LAW SCHOOL				
81	B.A., LL.B. (Hons.)	13111	5	280
82	B.Com., LL.B. (Hons.)	13216	5	280
83	BBA, LL.B. (Hons.)	13215	5	280
84	Master of Law (LLM)	13018	1	24
FACULTY OF HEALTH AND ALLIED SCIENCES				
AMITY MEDICAL SCHOOL				
85	Bachelor of Science (Dietetics & Applied Nutrition)	13393	3	150
86	Bachelor of Science (Medical Lab Technology)	13165	3	150
87	Bachelor of Optometry	131127	4	210
88	Bachelor of Audiology and Speech Language Pathology	13389	4	290
89	Master of Science (Clinical Research)	13402	2	100
90	Master of Science (Dietetics & Applied Nutrition)	13394	2	100
91	Master of Optometry	131133	2	100
92	Master of Optometry-Practitioner	131134	2	100
93	Master of Public Health	13396	2	100
94	Master of Hospital Administration	13340	2	100
95	Master of Science (Medical Lab Technology)	13163	2	100
96	Master of Hospital Administration (Executive for Working Professionals)	131135	3	90
97	Bachelor of Science (Molecular Medicine & Stem Cell Technologies)	131311	3	150
98	Master of Science (Molecular Medicine & Stem Cell Technologies)	131312	2	100

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AMITY COLLEGE OF NURSING				
99	Bachelor of Science (Nursing)	13184	4	170
100	Post Basic Bachelor of Science (Nursing)	13560	2	160
101	Master of Science (Nursing) (With Specialisation in (1) Medical Surgical Nursing (2) Community Health Nursing (3) Psychiatric Nursing (4) Obstetrical & Gynaecological Nursing and (5) Paediatric Nursing)	131449	2	214
AMITY INSTITUTE OF PHARMACY				
102	Bachelor of Pharmacy	13133	4	234
FACULTY OF ARCHITECTURE AND PLANNING				
AMITY SCHOOL OF ARCHITECTURE AND PLANNING				
103	Bachelor of Architecture	13040	5	279
104	Bachelor of Planning	13349	4	253
105	Master of Planning (Urban and Regional)	131469	2	100

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Annexure-3

OPEN ELECTIVES OFFERED
MINOR TRACKS

The following are the minor tracks with the minimum credit requirement which are available to the students

Sl. No.	Track with details of courses	No of credits to be earned for getting a minor degree	Prerequisites if any
1.	**Accounting** Semester 1-COM2151- Financial Accounting-I Semester 2-COM2251- Financial Accounting-II Semester 3-COM2351- Corporate Accounting Semester 4-COM2451- Financial Management Semester 5-COM2551- Cost Accounting Semester 6-COM2651- Management Accounting	18	No prerequisites
2.	**Aerospace Engineering** Semester 1-ASE2351- Elements of Aerospace Engineering Semester 2-ASE2451- Elements of Space Engineering Semester 3-ASE2551- Aircraft System Semester 4-ASE2651- Aircraft Stability & Control Semester 5-ASE2751- Aircraft Performance Semester 6-ASE2851- Introduction to Automatic Flight Control	18	Physics ,Chemistry, Maths in class 12th
3.	**Animation** Semester 1-ANI2152-Introduction to Multimedia and its Application Semester 2-ANI2252-Creating 2D Animation Semester 3-ANI2352-3D Modeling & Texturing Semester 4-ANI2452-Maya Modeling & Texturing Semester 5-ANI2552-Scripting & Storyboarding Semester 6-ANI2652-VFX	18	Aptitude Test
4.	**Artificial Intelligence** Semester 1-CSE2351-Basics of Artificial Intelligence Semester 2-CSE2451- Artificial Neural Networks Semester 3-CSE2551- Fuzzy Logic Semester 4-CSE2651-Introduction to Genetic Algorithm Semester 5-CSE2751- Soft Computing Semester 6-CSE2851-Project (Artificial Intelligence)	18	Physics ,Chemistry, Maths in class 12th
5.	**Biomedical** Semester 1-BME2351- Human Anatomy and Physiology-I Semester 2-BME2451- Bioinstrumentation Semester 3-BME2551- Tissue Engineering Semester 4-BME2651- Biomechanic Semester 5-BME2751- Medical Image Processing Semester 6-BME2851- Seminar-Biomedical Engineering	18	Physics ,Chemistry, Maths in class 12th

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6.	**Climate Science** Semester 1- AST2151- Basics of Climate Science Semester 2- AST2251- Introduction to Earth System Science Semester 3- AST2351- Cloud Microphysics and Chemistry Semester 4- AST2451-Climate Change: Impact, Vulnerability and Adaption Semester 5- AST2551- Primer of Oceanography Semester 6- AST2651- Fundamentals of Climate Variability and Modeling	18	No prerequisites
7.	**Cloud Computing** Semester 1-CSE2353- Computer Networks Semester 2-CSE2453- Distributed System Semester 3-CSE2553- High Performance Computing Semester 4-CSE2653- Information Storage Management Semester 5-CSE2753- Interfacing with Virtualization Semester 6- CSE2853- Cloud Computing Tools & Techniques	18	Physics ,Chemistry, Maths in class 12th
8.	**Computer Forensics & Cyber Security** Semester 1- FCH2151- Computer Forensics Semester 2- FCH2251- Ethics, Policies and the IT Act Semester 3- FCH2351- Behavioral Biometrics Semester 4- FCH2451- Implementation Practical on MATLAB Semester 5- FCH2551- Cyber Security Semester 6- FCH2651- Incident Response Management	18	No prerequisites
9.	**Data Analytics** Semester 1- MTH2151-Optimization Techniques Semester 2- MTH2251-Statistics Semester 3- MTH2351-Data Mining Semester 4- MTH2451-Database Management System Semester 5- MTH2551-Introduction to Financial Modeling Semester 6-MTH2651-Statistical Quality Control	18	Mathematics in Class 12th
10.	**Dietetics & Nutrition** Semester 1-DAN2151-Principles of Nutrition Semester 2-DAN2251-Family Meal Management Semester 3-DAN2351-Basics Dietetics Semester 4-DAN2451-Advanced Dietetics Semester 5-DAN2551-Community Nutrition Semester 6-DAN2651-Food Chemistry	18	No prerequisites
11.	**Disaster Management & Sustainable Built Environment** Semester 1-DSM2151-Introduction to Disaster Management Semester 2-DSM2251-Resilience Building for Built Environment Semester 3-DSM2351-Emergency Management Semester 4-DSM2451-Rehabilitation Reconstruction and Recovery Semester 5-DSM2551-Climate Change Adaptations and Sustainable Development Semester 6-DSM2651-Geoinformatics in Disaster Management	18	No prerequisites

12.	**Economics** Semester 1-ECO2151 –Micro Economics-I Semester 2-ECO2251 –Indian Economy Semester 3-ECO2351 –Macro Economics –I Semester 4-ECO2451 –Public Finance Semester 5-ECO2552 –Statistical Methods in Economics Semester 6-ECO2651 –Money, Banking & Financial Markets	18	No prerequisites -- ECO2151 ECO2151,2351 -- ECO2351
13.	**Embedded System** Semester 1-ECE2352-Introduction to Microprocessor System Semester 2-ECE2452-Microcontroller Semester 3-ECE2552-PCB Fabrication Semester 4-ECE2652-Robotics and Automation Semester 5-ECE2752-Simulation and Modeling Semester 6-ECE2852-Project (Embedded System)	18	Physics ,Chemistry, Maths in class 12th
14.	**English Literature** Semester 1-ENG2151-Shakespearean Comedy Semester 2-ENG2251-Romantic Poetry Semester 3-ENG2351-The Novels of England Semester 4-ENG2451-The English Novels of India Semester 5-ENG2551-Genre Fiction Semester 6-ENG2651-Contemporary Literature	18	No prerequisites
15.	**Environmental Management** Semester 1- ENV2151- Environmental Studies-I * Semester 2- ENV2251- Environmental Studies-II * Semester 3- ENV2351-Environmental Pollution and Waste Management Semester 4- ENV2451-Environmental Management and Industrial Safety Semester 5- ENV2551-Environmental Economics and Globalization Semester 6- ENV2651-Sustainable Development Practices	12 (Available from Sem-3, Total Credits: 12) * Environmental Studies is mandatory for all undergraduate courses and is taught in three different schemes during first year	No prerequisites
16.	**Entrepreneurship** Semester 1-MGT2152-Orientation Programme in Entrepreneurship Semester 2-MGT2252-Exploring Business Opportunity Semester 3-MGT2352-Developing a Business Model Semester 4-MGT2452-Translating Business Model into Startup Semester 5-MGT2552-Advanced Programme in Entrepreneurship: Growth Semester 6-MGT2652-Advanced Programme in Entrepreneurship: Expansion	18	No prerequisites
17.	**Environmental Health & Climate** Semester 1-AST2152-Linkages between Environment and Health Semester 2-AST2252-Climate Change and Implications on Public Health Semester 3-AST2352-Diseases in Contemporary Society Semester 4-AST2452-Air, Water and Soil Pollution,	18	No prerequisites

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	Environmental Health Professions Semester 5-AST2552-Ground-based and Satellite Remote Sensing Semester 6-AST2652-Instrumentation Lab		
18.	**Fashion Management** Semester 1-FDT2151- Fashion Art Illustration and Model Drawing Semester 2- FDT2251-Fashion Theory Semester 3- FDT2351-Computer Aided Manufacturing Semester 4- FDT2451-Fashion Management Semester 5- FDT2551-Fashion Forecasting Semester 6- FDT2651- Fashion Retailing & Visual Merchandising	18	No prerequisites
19.	**French Studies** Semester 1-LAN2161- Professional French for Business-1 Semester 2-LAN2261- Professional French for Business-2 Semester 3-LAN2361-Professional French for Business-3 Semester 4-LAN2461- Professional French for Business-4 Semester 5-LAN2561- Introduction to French Literature & select socio-cultural aspects of France Semester 6-LAN2661-French through activities	18	No prerequisites
20.	**Geotechnical Engineering** Semester 1-CIV2351- Engineering Geology Semester 2-CIV2451- Geo informatics Semester 3-CIV2551- Geotechnical Engineering-I Semester 4-CIV2651- Geotechnical Engineering-II Semester 5-CIV2751- Project (Geotechnical Engineering) Semester 6-CIV2851- Seminar-Geotechnical Engineering	18	Physics ,Chemistry, Maths in class 12th
21.	**German Studies** Semester 1-LAN2162-Professional German for Business-1 Semester 2-LAN2262-Professional German for Business-2 Semester 3-LAN2362-Professional German for Business-3 Semester 4-LAN2462-Professional German for Business-4 Semester 5- LAN2562-Introduction to German Literature & select socio-cultural aspects of Germany Semester 6-LAN2662-German through activities	18	No prerequisites
22.	**History** Semester 1- HIS2151-History of Ancient India Semester 2- HIS2251-History of Medieval India Semester 3- HIS2351-History of Modern India Semester 4- HIS2451-The Ancient World Semester 5- HIS2551-Rise of the Modern West Semester 6- HIS2651-History of the World from Mid 20th Century to the 21st Century	18	No prerequisites

23.	**Human Rights** Semester 1- LAW2152-Concept and Theoretical Understanding of Human Rights Semester 2- LAW2252-Systems, Organizations and Instruments of Human Rights Semester 3- LAW2352-Contemporary Human Rights Situations and Issues Semester 4- LAW2452-Specific Themes in Human Rights Semester 5- LAW2552-Legislation Themes in Human Rights Semester 6- LAW2652-Report Writing and Thesis Preparation (Human Rights)	18	LAW2152,LAW2252, LAW2352,LAW4252, LAW2552
24.	**Instrumentation Engineering** Semester 1-ECE2351-Basic Instrumentation Semester 2-ECE2451-Virtual Instrumentation Semester 3-ECE2551-Biomedical Instrumentation Semester 4-ECE2651-Analytical Instrumentation Semester 5-ECE2751-Industrial Process Control Semester 6-ECE2851-Project (Instrumentation Engineering)	18	Physics ,Chemistry, Maths in class 12th
25.	**Intellectual Property Rights** Semester 1-LAW2151-Principles of IPR Semester 2- LAW2251-Patent Law and Practices Semester 3- LAW2351-Copyright Law and Practices Semester 4- LAW2451-Trademark Law and Practices Semester 5- LAW2551-Emerging Legal Issues and Challenges Semester 6- LAW2651- Future Aspects of Intellectual Property Rights	18	No prerequisites
26.	**Journalism** Semester 1-JRN2151-Print Media: Reporting & Editing Semester 2-JRN2251-Basic Photography Semester 3-JRN2351-TV Journalism Semester 4-JRN2451-TV Production & Presentation Semester 5-JRN2551-New Media Semester 6-JRN2651-Media Analysis	18	No prerequisites
27.	**Korean Studies** Semester 1-LAN2165-Introduction to Korean History & Geography Semester 2-LAN2265-Korean Cultural Perspectives Semester 3-LAN2365-Modern History of Korea & Introduction to Korean Language Semester 4-LAN2465-Contemporary Korea Semester 5-LAN2565-Polity & Economy of Korea Semester 6-LAN2665-Themes in Korean Literature	18	No prerequisites
28.	**Laser System** Semester 1-LOE2351-Basics of Lasers Semester 2-LOE2451-Laser Technology & Applications Semester 3-LOE2551- Laser Systems & Devices Semester 4-LOE2651- Lasers in Defense Applications Semester 5-LOE2751- Lasers in Industrial Applications	18	No prerequisites

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	Semester 6-LOE2851-Lasers in Atmospheric Studies		
29.	**Management** Semester 1-MGT2151-Management Foundations Semester 2-MGT2251-Marketing Management Semester 3-MGT2351-Organizational Behaviour Semester 4-MGT2451-Business Environment Semester 5-MGT2551-Operations Research Semester 6-MGT2651-Business Law	18	No prerequisites
30.	**Mechanical Engineering** Semester 1-MAE2352-Thermodynamics Semester 2-MAE2452- Fluid Power Systems Semester 3-MAE2552- KOM Semester 4-MAE2652- DOM Semester 5-MAE2752-Meteorology Semester 6-MAE2852-Project (Mechanical Engineering)	18	Physics ,Chemistry, Maths in class 12th
31.	**Materials Science & Technology** Semester 1-PHY2151- Fundamentals of Materials Science Semester 2-PHY2251- Classification & Selection of Materials Semester 3-PHY2351- Properties of Materials Semester 4-PHY2451- Manufacturing Processes for Materials Semester 5-PHY2551- Materials Testing & Characterization Semester 6-PHY2651-Materials at Nanoscale	18	No prerequisites
32.	**Nanotechnology** Semester 1-NAT2152- Basics of Nanoscience Semester 2-NAT2251- Properties of Nanomaterials Semester 3-NAT2352- Vacuum Science & Clean Room Technology Semester 4-NAT2452- Synthesis of Nanomaterials Semester 5-NAT2552- Characterization Techniques Semester 6-NAT2652- Industrial Applications of Nanomaterials	18	No prerequisites
33.	**Painting Arts** Semester 1-FNA2151-Basics of Drawing and Asian Landscape Semester 2-FNA2251-Basics of Drawing and Monochrome Folk Composition Semester 3-FNA2351-Advanced Drawing and Illustration of Indian Temple Sculpture Semester 4-FNA2451- Advanced Drawing with Ink and Brush Illustration Semester 5-FNA2551-Advanced Drawing and Illustration with Mural Art Semester 6-FNA2651- Advanced Drawing and Illustration with Visual Design	18	No prerequisites
34.	**Pharmaceuticals** Semester 1-CHY2351-Cosmetic Formulation Semester 2-CHY2451- Industrial Management and Safety Process	18	No prerequisites

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	Semester 3-CHY2551- Drug Design Semester 4-CHY2651- Application of Nanotechnology in Medicine Semester 5-CHY2751- Intellectual Property Rights and Quality Assurance Semester 6-CHY2851- Pharmaceutical and Cosmetics Sciences Lab		
35.	**Physical Education and Sports Management** Semester 1- PED2151- Health Education and Sports Semester 2- PED2251- Human Anatomy and Exercise Semester 3- PED2351- Sports Training and Conditioning Semester 4- PED2451-Basics of Sports Management Semester 5- PED2551- Sports Psychology Semester 6-PED2651- Sports Medicine	18	No prerequisites
36.	**Political Studies** Semester 1- POL2151- Indian National Movement Semester 2- POL2251- Indian State and Politics after Independence Semester 3- POL2351- State Politics in India Semester 4- POL2451-Politics and Media Semester 5- POL2551- South Asia: Political Perspectives Semester 6- POL2651- Post-Cold War World Politics	18	No prerequisites
37.	**Psychology** Semester 1-PSY2151-Introductory Psychology Semester 2-PSY2251-Abnormal Psychology Semester 3-PSY2351-Basic Cognitive Psychology Semester 4-PSY2451-Life Span Development Semester 5-PSY2551-Psychometric Testing Semester 6-PSY2651-Counselling Psychology	18	No prerequisites
38.	**Positive Psychology** Semester 1-PSY2152-The Science of Happiness Semester 2-PSY2252-Optimism and Success Semester 3-PSY2352-Resilience and Well Being Semester 4-PSY2452-Positive Psychology & Work Life Semester 5-PSY2552-Creativity & Problem Solving Semester 6-PSY2652-Positive Leadership & Competency Development	18	No prerequisites
39.	**Performing Arts** Semester 1-PAR2151- Introduction to Performing Arts Semester 2-PAR2251-Dynamics of Dance, Music & Theatre Semester 3-PAR2351-Social relevance of Dance, Music & Drama in Contemporary Indian Scene Semester 4-PAR2451- Indian Folk Arts Semester 5-PAR2551-Modern Indian Performing Arts Semester 6-PAR2651-Arts, Aesthetic & Society	18	No prerequisites
40.	**Polymer Technology** Semester 1-PTE2151- Polymerization	18	Physics,Chemistry, Maths/Biology in

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	Semester 2-PTE2251-Waste Plastic Recycling Semester 3-PTE2351-Polymer Technology Semester 4-PTE2451- Rubber &Tyre Technology Semester 5-PTE2551-Polymeric Nano Composites Semester 6-PTE2651-Bio-Medical Plastics		class 12th
41.	**Quebec Studies** Semester 1-LAN2164-Introduction to the French North America- a short history of Quebec Semester 2-LAN2264-Quebec Society Culture & Language Semester 3-LAN2364-Quebec in the World Affairs Semester 4-LAN2464-Political Economy of Quebec Semester 5-LAN2564-Introduction to Major Literary Movements in Quebec-I Semester 6-LAN2664-Introduction to Major Literary Movements in Quebec-II	18	No prerequisites
42.	**Renewable Energy** Semester 1-SAE2151- Renewable Energy Conversion Systems Semester 2-SAE2251- Introduction to Solar Thermal Engineering Semester 3-SAE2351- Introduction to Solar Photovoltaic Semester 4-SAE2451-Energy from Wastes Semester 5-SAE2551- Renewable Energy for Heat Applications Semester 6-SAE2651- Energy Audit and Energy Management	18	No prerequisites
43.	**Spanish Studies** Semester 1-LAN2163-EFE Professional Spanish for Business-I Semester 2-LAN2263-EFE Professional Spanish for Business-II Semester 3-LAN2363-EFE Professional Spanish for Business-III Semester 4-LAN2463-EFE Professional Spanish for Business-IV Semester 5-LAN2563- Introduction to Spanish Literature & select socio-cultural aspects of Spain Semester 6-LAN2663- Spanish through activities	18	No prerequisites
44.	**Stem Cell Technology** Semester 1-SCT2151- Introduction to Stem Cell Technology Semester 2-SCT2251- Fundamental Human Embryology & Developmental Biology Semester 3-SCT2351- Fundamental Cell Biology Human Anatomy & Physiology Semester 4-SCT2451- Human Pluripotent Stem Cell Culture & Differentiation Methods Semester 5-SCT2551- Therapeutic Applications of Human Pluripotent Stem Cells Semester 6-SCT2651- Project & Paper Presentation	18	No prerequisites

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45.	**Sanskrit** Semester 1-SKT2151- Introduction to Sanskrit Language Semester 2-SKT2251-General Introduction to Vedic Literature & Conversational Sanskrit Semester 3-SKT2351-General Introduction to Sanskrit Literature & Sanskrit Conversation Semester 4-SKT2451- Sanskrit Language & Indian Culture Semester 5-SKT2551-Introduction to Sanskrit Linguistics Semester 6-SKT2651-General Introduction to Indian Philosophy & Sanskrit Grammar	18	Basic Knowledge of Hindi
46.	**Tagore Studies** Semester 1-ENG2152- Rabindranath Tagore in the 21st Century Semester 2-ENG2252- Tagore- Autobiographies & Biographical Sketches Semester 3-ENG2352- Tagore as a Cultural Icon – Tagore as a Painter & Performer Semester 4-ENG2452- Tagore as a Poet Semester 5-ENG2552- Tagore as a Fiction Writer Semester 6-ENG2652- Tagore and Mass Media	18	No prerequisites
47.	**Unmanned Aerial Vehicles** Semester 1-ASE2352- Introduction to UAVs and Applications Semester 2-ASE2452- Principles of UAV's Flight Semester 3-ASE2552- Aerial Imagery: Hardware & Software Semester 4-ASE2652- Embedded Systems for UAVs Semester 5-ASE2752- Research Project-I Drone Development Semester 6-ASE2852- Research Project-II Drone Troubleshooting, Testing & Deployment	18	Basic Physics, Mathematics, ASE2352, Basics of Computer Languages Sem (1-4) Sem (1-5)
**	**Military Training Foundation** GEN2051- Military Training Foundation	3	Single Semester Course

** Standalone Open Elective offered in each Semester.

LIST OF SKILL TRACKS (MINOR TRACKS)

Sl. No.	Track with details of courses	No of credits to be earned for getting a minor degree	Prerequisites if any
48.	**Apparel Merchandising** Semester 1- VFD2151–Introduction to Apparel Merchandising Semester 2- VFD2251–Apparel Market Research & Product Analysis Semester 3- VFD2351–Vendor Management & Product Evaluation Semester 4- VFD2451–Prototype Preparation & Merchandise Plan	18	No Prerequisites VFD2151 VFD2251 VFD2351

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	Semester 5- VFD2551–Pre-Production Management Semester 6- VFD2651–Shipment & Documentation Management		VFD2451 VFD2551
49.	**Fashion Design** Semester 1- VFD2152-Design Eco-System Semester 2- VFD2252- Fashion Design Research Semester 3- VFD2352-Design Preparatory Process Semester 4- VFD2452-Prototype Garment Development Semester 5- VFD2552- Design Development Semester 6- VFD2652-Health & Safety Equilibrium	18	 No Prerequisites VFD2152 VFD2252 VFD2352 VFD2452 VFD2552
50.	**Food & Beverage Service** Semester 1- VHM2152- Basics of Food Service Semester 2- VHM2252- Advanced Food Service Semester 3- VHM2352- Beverage Studies- Basic Semester 4- VHM2452- Beverage Studies-Advanced Semester 5- VHM2552- F&B Service Supervisory Skills Semester 6- VHM2652- F&B Management Skills	18	 No prerequisites VHM2152 VHM2252 VHM2352 VHM2452 VHM2552
51.	**Food Production Techniques** Semester 1- VHM2151- Basics of Food Production Semester 2- VHM2251- Food Production Skills Semester 3- VHM2351- Food Production Operations Semester 4- VHM2451- Advanced Food Production Semester 5- VHM2551- Food Production Supervisory Skills Semester 6- VHM2651- Food Production Management	18	 No prerequisites VHM2151 VHM2251 VHM2351 VHM2451 VHM2551
52.	**Front Office Operations** Semester 1- VHM2153- Fundamentals of Front Office Operations Semester 2- VHM2253- Handling Reception Semester 3- VHM2353- Check-in & Check-out Process Semester 4- VHM2453- Front Office Supervisory Skills Semester 5- VHM2553- Front Office Yield Management Semester 6- VHM2653- Managing Front Office	18	 No prerequisites VHM2153 VHM2253 VHM2353 VHM2453 VHM2553
53.	**Housekeeping Functions** Semester 1- VHM2154- Basics of Housekeeping Semester 2- VHM2254- Rules for Cleaning Semester 3- VHM2354- Laundry Operations Semester 4- VHM2454- Maintaining Guest Room Semester 5- VHM2554- Housekeeping Supervisory Skills Semester 6- VHM2654- Housekeeping Management Skills	18	 No prerequisites VHM2154 VHM2254 VHM2354 VHM2454 VHM2554
54.	**Tourism Operations** Semester 1- VTM2151-Fundamentals of Tourism Semester 2- VTM2251-Tour Operations & Tourist Guidance Semester 3- VTM2351-Handling Travel Agency Semester 4- VTM2451-Coordinating Tour Transportations Semester 5- VTM2551-Tourism Management Semester 6- VTM2651-Event Planning	18	 No prerequisites VTM2151 VTM2251 VTM2351 VTM2451 VTM2551

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Semester wise Open Electives

FIRST SEMESTER					
Course Code	**Course Title**	**Lecture (L) Hours Per Week**	**Tutorial (T) Hours Per Week**	**Practical (P) Hours Per Week**	**Total Credits**
ANI2152	Introduction to Multimedia and its Application	2	0	2	3
ASE2351	Elements of Aerospace Engineering	3	0	0	3
ASE2352	Introduction to UAVs and Applications	2	1	0	3
AST2151	Basics of Climate Science	3	0	0	3
AST2152	Linkages between Environment & Health	3	0	0	3
BME2351	Human Anatomy and Physiology-I	3	0	0	3
CHY2351	Cosmetic Formulation	3	0	0	3
CIV2351	Engineering Geology	3	0	0	3
COM2151	Financial Accounting-I	3	0	0	3
CSE2351	Basics of Artificial Intelligence	3	0	0	3
CSE2353	Computer Networks	3	0	0	3
DAN2151	Principles of Nutrition	3	0	0	3
DSM2151	Introduction to Disaster Management	2	1	0	3
ECE2351	Basic Instrumentation	3	0	0	3
ECE2352	Introduction to Microprocessor System	2	0	2	3
ECO2151	Micro Economics-I	2	1	0	3
ENG2151	Shakespearean Comedy	3	0	0	3
ENG2152	Rabindranath Tagore in the 21st Century	3	0	0	3
FCH2151	Computer Forensics	2	0	2	3
FDT2151	Fashion Art Illustration and Model Drawing	1	1	2	3
FNA2151	Basics of Drawing and Asian Landscape	1	0	4	3

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GEN2051	Military Training Foundation	3	0	0	3
HIS2151	History of Ancient India	3	0	0	3
JRN2151	Print Media: Reporting & Editing	2	0	2	3
LAN2161	Professional French for Business-1	2	1	0	3
LAN2162	Professional German for Business-1	2	1	0	3
LAN2163	EFE Professional Spanish for Business-I	2	1	0	3
LAN2164	Introduction to the French North America- a short history of Quebec	3	0	0	3
LAN2165	Introduction to Korean History & Geography	3	0	0	3
LAW2151	Principles of IPR	3	0	0	3
LAW2152	Concept and Theoretical Understanding of Human Rights	3	0	0	3
LOE2351	Basics of Lasers	2	0	2	3
MAE2352	Thermodynamics	3	0	0	3
MGT2151	Management Foundations	2	1	0	3
MGT2152	Orientation Programme in Entrepreneurship	3	0	0	3
MTH2151	Optimization Techniques	3	0	0	3
NAT2152	Basics of Nanoscience	3	0	0	3
PAR2151	Introduction to Performing Arts	2	0	2	3
PED2151	Health Education and Sports	3	0	0	3
PHY2151	Fundamentals of Materials Science	3	0	0	3
POL2151	Indian National Movement	3	0	0	3
PSY2151	Introductory Psychology	2	1	0	3
PSY2152	The Science of Happiness	3	0	0	3
PTE2151	Polymerization	2	0	2	3
SAE2151	Renewable Energy Conversion Systems	3	0	0	3
SCT2151	Introduction to Stem Cell Technology	3	0	0	3
SKT2151	Introduction to Sanskrit Language	3	0	0	3
VFD2151	Introduction to Apparel Merchandising	1	0	4	3
VFD2152	Design Eco-System	1	0	4	3

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VHM2151	Basics of Food Production	3	0	0	3
VHM2152	Basics of Food Service	3	0	0	3
VHM2153	Fundamentals of Front Office Operations	3	0	0	3
VHM2154	Basics of Housekeeping	3	0	0	3
VTM2151	Fundamentals of Tourism	3	0	0	3

SECOND SEMESTER					
Course Code	**Course Title**	**Lecture (L) Hours Per Week**	**Tutorial (T) Hours Per Week**	**Practical (P) Hours Per Week**	**Total Credits**
ANI2252	Creating 2D Animation	2	0	2	3
ASE2451	Elements of Space Engineering	3	0	0	3
ASE2452	Principles of UAV's Flight	2	1	0	3
AST2251	Introduction to Earth System Science	3	0	0	3
AST2252	Climate Change and Implications on Public Health	3	0	0	3
BME2451	Bioinstrumentation	3	0	0	3
CHY2451	Industrial Management and Safety Process	3	0	0	3
CIV2451	Geo informatics	2	1	0	3
COM2251	Financial Accounting-II	3	0	0	3
CSE2451	Artificial Neural Network	2	1	0	3
CSE2453	Distributed System	3	0	0	3
DAN2251	Family Meal Management	3	0	0	3
DSM2251	Resilience Building for Built Environment	2	1	0	3
ECE2451	Virtual Instrumentation	2	0	2	3
ECE2452	Microcontroller	3	0	0	3
ECO2251	Indian Economy	3	0	0	3
ENG2251	Romantic Poetry	3	0	0	3

ENG2252	Tagore-Autobiographies & Biographical Sketches	3	0	0	3
FCH2251	Ethics Policies and the IT Act	2	1	0	3
FDT2251	Fashion Theory	3	0	0	3
FNA2251	Basics of Drawing and Monochrome Folk Composition	1	0	4	3
GEN2051	Military Training Foundation	3	0	0	3
HIS2251	History of Medieval India	3	0	0	3
JRN2251	Basic Photography	2	0	2	3
LAN2261	Professional French for Business-2	2	1	0	3
LAN2262	Professional German for Business-2	2	1	0	3
LAN2263	EFE Professional Spanish for Business-II	2	1	0	3
LAN2264	Quebec Society Culture & Language	3	0	0	3
LAN2265	Korean Cultural Perspectives	3	0	0	3
LAW2251	Patent Law and Practices	3	0	0	3
LAW2252	Systems, Organizations and Instruments of Human Rights	3	0	0	3
LOE2451	Laser Technology and Applications	3	0	0	3
MAE2452	Fluid Power System	3	0	0	3
MGT2251	Marketing Management	2	1	0	3
MGT2252	Exploring Business Opportunity	3	0	0	3
MTH2251	Statistics	3	0	0	3
NAT2251	Properties of Nanomaterials	3	0	0	3
PAR2251	Dynamics of Dance, Music & Theatre	2	0	2	3
PED2251	Human Anatomy and Exercise	3	0	0	3
PHY2251	Classification & Selection of Materials	3	0	0	3
POL2251	Indian State and Politics after Independence	3	0	0	3
PSY2251	Abnormal Psychology	2	1	0	3

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PSY2252	Optimism and Success	3	0	0	3
PTE2251	Waste Plastic Recycling	3	0	0	3
SAE2251	Introduction to Solar Thermal Engineering	2	0	2	3
SCT2251	Fundamental Human Embryology & Developmental Biology	3	0	0	3
SKT2251	General Introduction to Vedic Literature & Conversational Sanskrit	3	0	0	3
VFD2251	Apparel Market Research & Product Analysis	1	0	4	3
VFD2252	Fashion Design Research	1	0	4	3
VHM2251	Food Production Skills	3	0	0	3
VHM2252	Advanced Food Service	3	0	0	3
VHM2253	Handling Reception	3	0	0	3
VHM2254	Rules for Cleaning	3	0	0	3
VTM2251	Tour Operations & Tourist Guidance	3	0	0	3

THIRD SEMESTER					
Course Code	**Course Title**	**Lecture (L) Hours Per Week**	**Tutorial (T) Hours Per Week**	**Practical (P) Hours Per Week**	**Total Credits**
ANI2352	3D Modeling & Texturing	1	0	4	3
ASE2551	Aircraft System	3	0	0	3
ASE2552	Aerial Imagery: Hardware and Software	2	1	0	3
AST2351	Cloud Microphysics and Chemistry	3	0	0	3
AST2352	Diseases in Contemporary Society	3	0	0	3
BME2551	Tissue Engineering	3	0	0	3
CHY2551	Drug Design	3	0	0	3
CIV2551	Geotechnical Engineering-I	3	0	0	3

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COM2351	Corporate Accounting	3	0	0	3
CSE2551	Fuzzy Logic	3	0	0	3
CSE2553	High Performance Computing	3	0	0	3
DAN2351	Basics Dietetics	2	0	2	3
DSM2351	Emergency Management	2	1	0	3
ECE2551	Biomedical Instrumentation	3	0	0	3
ECE2552	PCB Fabrication	3	0	0	3
ECO2351	Macro Economics-I	3	0	0	3
ENG2351	The Novels of England	3	0	0	3
ENG2352	Tagore as a Cultural Icon - Tagore as a Painter & Performer	3	0	0	3
ENV2351	Environmental Pollution and Waste Management	3	0	0	3
FCH2351	Behavioral Biometrics	2	1	0	3
FDT2351	Computer Aided Manufacturing	1	1	2	3
FNA2351	Advanced Drawing and Illustration of Indian Temple Sculpture	1	0	4	3
GEN2051	Military Training Foundation	3	0	0	3
HIS2351	History of Modern India	3	0	0	3
JRN2351	TV Journalism	2	0	2	3
LAN2361	Professional French for Business-3	2	1	0	3
LAN2362	Professional German for Business-3	2	1	0	3
LAN2363	EFE Professional Spanish for Business-III	2	1	0	3
LAN2364	Quebec in the World Affairs	3	0	0	3
LAN2365	Modern History of Korea & Introduction to Korean Language	3	0	0	3
LAW2351	Copyright Law and Practices	3	0	0	3
LAW2352	Contemporary Human Rights Situations and Issues	3	0	0	3

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LOE2551	Laser System and Devices	3	0	0	3
MAE2552	KOM	3	0	0	3
MGT2351	Organizational Behaviour	2	1	0	3
MGT2352	Developing a Business Model	3	0	0	3
MTH2351	Data Mining	3	0	0	3
NAT2352	Vacuum Science & Clean Room Technology	2	0	2	3
PAR2351	Social relevance of Dance, Music & Drama in Contemporary Indian Scene	2	0	2	3
PED2351	Sports Training and Conditioning	3	0	0	3
PHY2351	Properties of Materials	3	0	0	3
POL2351	State Politics in India	3	0	0	3
PSY2351	Basic Cognitive Psychology	2	1	0	3
PSY2352	Resilience and Well Being	3	0	0	3
PTE2351	Polymer Technology	3	0	0	3
SAE2351	Introduction to Solar Photovoltaic	2	0	2	3
SCT2351	Fundamental Cell Biology Human Anatomy & Physiology	3	0	0	3
SKT2351	General Introduction to Sanskrit Literature & Sanskrit Conversation	3	0	0	3
VFD2351	Vendor Management & Product Evaluation	1	0	4	3
VFD2352	Design Preparatory Process	1	0	4	3
VHM2351	Food Production Operations	3	0	0	3
VHM2352	Beverage Studies-Basic	3	0	0	3
VHM2353	Check-in & Check-out Process	3	0	0	3
VHM2354	Laundry Operations	3	0	0	3
VTM2351	Handling Travel Agency	3	0	0	3

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FOURTH SEMESTER					
Course Code	**Course Title**	**Lecture (L) Hours Per Week**	**Tutorial (T) Hours Per Week**	**Practical (P) Hours Per Week**	**Total Credits**
ANI2452	Maya Modeling & Texturing	1	0	4	3
ASE2651	Aircraft Stability and Control	3	0	0	3
ASE2652	Embedded Systems for UAVs	2	1	0	3
AST2451	Climate Change: Impact, Vulnerability and Adaption	3	0	0	3
AST2452	Air, Water and Soil Pollution, Environmental Health Professions	3	0	0	3
BME2651	Biomechanic	3	0	0	3
CHY2651	Application of Nanotechnology in Medicine	3	0	0	3
CIV2651	Geotechnical Engineering-II	3	0	0	3
COM2451	Financial Management	3	0	0	3
CSE2651	Introduction to Genetic Algorithm	3	0	0	3
CSE2653	Information Storage Management	3	0	0	3
DAN2451	Advanced Dietetics	2	0	2	3
DSM2451	Rehabilitation Reconstruction and Recovery	2	1	0	3
ECE2651	Analytical Instrumentation	3	0	0	3
ECE2652	Robotics and Automation	3	0	0	3
ECO2451	Public Finance	3	0	0	3
ENG2451	The English Novels of India	3	0	0	3
ENG2452	Tagore as a Poet	3	0	0	3
ENV2451	Environmental Management and Industrial Safety	3	0	0	3
FCH2451	Implementation Practical on MATLAB	0	0	6	3
FDT2451	Fashion Management	2	1	0	3

FNA2451	Advanced Drawing with Ink & brush Illustration	1	0	4	3
GEN2051	Military Training Foundation	3	0	0	3
HIS2451	The Ancient World	3	0	0	3
JRN2451	TV Production & Presentation	2	0	2	3
LAN2461	Professional French for Business-4	2	1	0	3
LAN2462	Professional German for Business-4	2	1	0	3
LAN2463	EFE Professional Spanish for Business-IV	2	1	0	3
LAN2464	Political Economy of Quebec	3	0	0	3
LAN2465	Contemporary Korea	3	0	0	3
LAW2451	Trademark Law and Practices	3	0	0	3
LAW2452	Specific Themes in Human Rights	3	0	0	3
LOE2651	Lasers in Defense Applications	3	0	0	3
MAE2652	DOM	3	0	0	3
MGT2451	Business Environment	2	1	0	3
MGT2452	Translating Business Model into Startup	3	0	0	3
MTH2451	Database Management Systems	3	0	0	3
NAT2452	Synthesis of Nanomaterials	2	0	2	3
PAR2451	Indian Folk Arts	2	0	2	3
PED2451	Basics of Sports Management	3	0	0	3
PHY2451	Manufacturing Processes for Materials	3	0	0	3
POL2451	Politics and Media	3	0	0	3
PSY2451	Life Span Development	2	1	0	3
PSY2452	Positive Psychology and Work Life	3	0	0	3
PTE2451	Rubber & Tyre Technology	3	0	0	3
SAE2451	Energy from Wastes	3	0	0	3
SCT2451	Human Pluripotent Stem Cell Culture & Differentiation Methods	3	0	0	3

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SKT2451	Sanskrit Language & Indian Culture	3	0	0	3
VFD2451	Prototype Preparation & Merchandise Plan	1	0	4	3
VFD2452	Prototype Garment Development	1	0	4	3
VHM2451	Advanced Food Production	3	0	0	3
VHM2452	Beverage Studies-Advanced	3	0	0	3
VHM2453	Front Office Supervisory Skills	3	0	0	3
VHM2454	Maintaining Guest Room	3	0	0	3
VTM2451	Coordinating Tour Transportations	3	0	0	3

FIFTH SEMESTER					
Course Code	**Course Title**	**Lecture (L) Hours Per Week**	**Tutorial (T) Hours Per Week**	**Practical (P) Hours Per Week**	**Total Credits**
ANI2552	Scripting & Storyboarding	1	1	2	3
ASE2751	Aircraft Performance	3	0	0	3
ASE2752	Research Project-I Drone Development	0	0	0	3
AST2551	Primer of Oceanography	3	0	0	3
AST2552	Ground-based and Satellite Remote Sensing	3	0	0	3
BME2751	Medical Image Processing	3	0	0	3
CHY2751	Intellectual Property Rights and Quality Assurance	3	0	0	3
CIV2751	Project-Geotechnical Engineering	3	0	0	3
COM2551	Cost Accounting	3	0	0	3
CSE2751	Soft Computing	3	0	0	3
CSE2753	Interfacing with Virtualization	3	0	0	3
DAN2551	Community Nutrition	3	0	0	3
DSM2551	Climate Change Adaptations and Sustainable Development	2	1	0	3

ECE2751	Industrial Process Control	3	0	0	3
ECE2752	Simulation and Modeling	0	0	6	3
ECO2552	Statistical Methods in Economics	3	0	0	3
ENG2551	Genre Fiction	3	0	0	3
ENG2552	Tagore as a Fiction Writer	3	0	0	3
ENV2551	Environmental Economics and Globalization	3	0	0	3
FCH2551	Cyber Security	2	0	2	3
FDT2551	Fashion Forecasting	2	1	0	3
FNA2551	Advanced Drawing and Illustration with Mural Art	1	0	4	3
GEN2051	Military Training Foundation	3	0	0	3
HIS2551	Rise of the Modern West	3	0	0	3
JRN2551	News Media	2	1	0	3
LAN2561	Introduction to French Literature & select socio-cultural aspects of France	2	1	0	3
LAN2562	Introduction to German Literature & select socio-cultural aspects of Germany	2	1	0	3
LAN2563	Introduction to Spanish Literature & select socio-cultural aspects of Spain	2	1	0	3
LAN2564	Introduction to Major Literary Movements in Quebec-I	3	0	0	3
LAN2565	Polity & Economy of Korea	3	0	0	3
LAW2551	Emerging Legal Issues and Challenges	3	0	0	3
LAW2552	Legislation Themes in Human Rights	3	0	0	3
LOE2751	Lasers in Industrial Applications	3	0	0	3
MAE2752	Meteorology	3	0	0	3
MGT2551	Operations Research	2	0	2	3
MGT2552	Advanced Programme in Entrepreneurship: Growth	3	0	0	3
MTH2551	Introduction to Financial Modeling	3	0	0	3

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NAT2552	Characterization Techniques	3	0	0	3
PAR2551	Modern Indian Performing Arts	2	0	2	3
PED2551	Sports Psychology	3	0	0	3
PHY2551	Materials Testing & Characterization	3	0	0	3
POL2551	South Asia: Political Perspectives	3	0	0	3
PSY2551	Psychometric Testing	2	1	0	3
PSY2552	Creativity and Problem Solving	3	0	0	3
PTE2551	Polymeric Nano Composites	2	0	2	3
SAE2551	Renewable Energy for Heat Applications	3	0	0	3
SCT2551	Therapeutic Applications of Human Pluripotent Stem Cells	3	0	0	3
SKT2551	Introduction to Sanskrit Linguistics	3	0	0	3
VFD2551	Pre-Production Management	1	1	2	3
VFD2552	Design Development	1	1	2	3
VHM2551	Food Production Supervisory Skills	3	0	0	3
VHM2552	F&B Service Supervisory Skills	3	0	0	3
VHM2553	Front Office Yield Management	3	0	0	3
VHM2554	Housekeeping Supervisory Skills	3	0	0	3
VTM2551	Tourism Management	3	0	0	3

SIXTH SEMESTER					
Course Code	**Course Title**	**Lecture (L) Hours Per Week**	**Tutorial (T) Hours Per Week**	**Practical (P) Hours Per Week**	**Total Credits**
ANI2652	VFX	2	0	2	3
ASE2851	Introduction to Automatic Flight Control	3	0	0	3

ASE2852	Research Project-II Drone Troubleshooting, Testing and Deployment	0	0	0	3
AST2651	Fundamentals of Climate Variability and Modelling	3	0	0	3
AST2652	Instrumentation Lab	0	0	6	3
BME2851	Seminar (Biomedical Engineering)	3	0	0	3
CHY2851	Pharmaceutical and Cosmetics Sciences Lab	3	0	0	3
CIV2851	Seminar- Geotechnical Engineering	3	0	0	3
COM2651	Management Accounting	3	0	0	3
CSE2851	Project – Artificial Intelligence	3	0	0	3
CSE2853	Cloud Computing Tools & Techniques	3	0	0	3
DAN2651	Food Chemistry	3	0	0	3
DSM2651	Geoinformatics in Disaster Management	2	1	0	3
ECE2851	Project (Instrumentation Engineering)	3	0	0	3
ECE2852	Project (Embedded System)	3	0	0	3
ECO2651	Money, Banking & Financial Markets	3	0	0	3
ENG2651	Contemporary Literature	3	0	0	3
ENG2652	Tagore and Mass Media	3	0	0	3
ENV2651	Sustainable Development Practices	3	0	0	3
FCH2651	Incident Response Management	2	1	0	3
FDT2651	Fashion Retailing & Visual Merchandising	3	0	0	3
FNA2651	Advanced Drawing and Illustration with Visual Design	1	0	4	3
GEN2051	Military Training Foundation	3	0	0	3
HIS2651	History of the World from Mid 20th Century to the 21st Century	3	0	0	3
JRN2651	Media Analysis	3	0	0	3
LAN2661	French through activities	2	1	0	3

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LAN2662	German through activities	2	1	0	3
LAN2663	Spanish through activities	2	1	0	3
LAN2664	Introduction to Major Literary Movements in Quebec-II	3	0	0	3
LAN2665	Themes in Korean Literature	3	0	0	3
LAW2651	Future Aspects of Intellectual Property Rights	1	0	4	3
LAW2652	Report Writing and Thesis Preparation (Human Rights)	3	0	0	3
LOE2851	Lasers in Atmospheric Studies	3	0	0	3
MAE2852	Project (Mechanical Engineering)	3	0	0	3
MGT2651	Business Law	2	1	0	3
MGT2652	Advanced Programme in Entrepreneurship: Expansion	3	0	0	3
MTH2651	Statistical Quality Control	3	0	0	3
NAT2652	Industrial Application of Nanomaterials	3	0	0	3
PAR2651	Arts, Aesthetic & Society	2	0	2	3
PED2651	Sports Medicine	3	0	0	3
PHY2651	Materials at Nanoscale	3	0	0	3
POL2651	Post-Cold War World Politics	0	0	3	3
PSY2651	Counselling Psychology	2	1	0	3
PSY2652	Positive Leadership & Competency Development	3	0	0	3
PTE2651	Bio-Medical Plastics	3	0	0	3
SAE2651	Energy Audit and Energy Management	3	0	0	3
SCT2651	Project & Paper Presentation	0	0	0	3
SKT2651	General Introduction to Indian Philosophy & Sanskrit Grammar	3	0	0	3
VFD2651	Shipment & Documentation Management	1	0	4	3
VFD2652	Health & Safety Equilibrium	1	0	4	3
VHM2651	Food Production Management	3	0	0	3

VHM2652	F&B Management Skills	3	0	0	3
VHM2653	Managing Front Office	3	0	0	3
VHM2654	Housekeeping Management Skills	3	0	0	3
VTM2651	Event Planning	3	0	0	3

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Annexure-4

DISCIPLINE DESCRIPTORS

Sl. No.	Discipline	Discipline Descriptor	School or organisational unit that will be responsible for administration of the course
1	Artificial Intelligence Engineering	AIE	Amity School of Engineering and Technology
2	Animation	ANI	Amity School of Communication
3	Architecture	ARC	Amity School of Architecture and Planning
4	Aerospace Engineering	ASE	Amity School of Engineering and Technology
5	Audiology, Speech and Language	ASL	Amity Medical School
6	Climate Science / Climate Mgmt.	AST	Amity School of Earth & Environment Sciences
7	Biochemistry	BCH	Amity School of Applied Sciences
8	Behavioural Science	BEH	Amity Institute of Behavioural & Allied Sciences
9	Interior Design (BSc 3 yr Program)	BID	Amity Institute of Design
10	Bioinformatics	BIF	Amity Institute of Biotechnology
11	Biological Science	BLS	Amity Institute of Biotechnology
12	Biomedical Engineering	BME	Amity School of Engineering and Technology
13	Biotechnology (PhD Courses)	BTC	Amity Institute of Biotechnology
14	Biotechnology (Engineering)	BTE	Amity Institute of Biotechnology
15	Biotechnology (Non Engineering)	BTH	Amity Institute of Biotechnology
16	Business Analytics	BUA	Amity Business School
17	M.Sc-Nursing (Community Health Nursing)	CHN	Amity College of Nursing
18	Chemistry	CHY	Amity School of Applied Sciences
19	Pharmaceutical	CHY	Amity School of Applied Sciences
20	Civil Engineering	CIV	Amity School of Engineering and Technology
21	Clinical Research	CLR	Amity Medical School
22	Construction Management Engineering	CME	Amity School of Engineering and Technology
23	Commerce/ Accounts	COM	Amity College of Commerce
24	Computer Science (3 Continent Program)	CSC	Amity School of Engineering and Technology

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25	Computer Science	CSE	Amity School of Engineering and Technology
26	Computer Science (Global Study Programme)	CSG	Amity School of Engineering and Technology
27	Computer Science (Part-time/ weekend)	CSP	Amity School of Engineering and Technology
28	Communication Skills	CSS	Amity School of Liberal Arts & Foreign Languages
29	Civil Engineering (3 Continent Program)	CVC	Amity School of Engineering and Technology
30	Civil Engineering (Part-time/weekend)	CVP	Amity School of Engineering and Technology
31	Dietetics & Nutrition	DAN	Amity Medical School
32	Data Sciences	DSC	Amity Institute of Biotechnology
33	Data Sciences Engineering	DSE	Amity School of Engineering and Technology
34	Disaster Management	DSM	Amity School of Architecture and Planning
35	Defence Technology Engineering	DTE	Amity School of Engineering and Technology
36	Electronics & Communication Engineering (3 Continent Program)	ECC	Amity School of Engineering and Technology
37	Electronics & Communication Engineering	ECE	Amity School of Engineering and Technology
38	Management (E-Commerce-Specialisation)	ECM	Amity Business School
39	Economics	ECO	Amity Business School
40	Electronics & Communication (Part-time/ weekend)	ECP	Amity School of Engineering and Technology
41	Bachelor of Education (B.Ed)	EDU	Amity School of Liberal Arts & Foreign Languages
42	Electronics & Electrical Engineering	EEE	Amity School of Engineering and Technology
43	Management (Executive MBA Full-Time)	EMF	Amity Business School
44	English & (Tagore Studies-OE)	ENG	Amity School of Liberal Arts & Foreign Languages
45	Environmental Sciences	ENV	Amity School of Earth & Environment Sciences
46	Earth Sciences	ESC	Amity School of Earth & Environment Sciences
47	Environment Engineering	EVE	Amity School of Engineering and Technology
48	Nursing (for elective courses)	ELEC	Amity College of Nursing
49	Food & Beverage Services	FBS	Amity School of Hospitality
50	Forensic Science (Chemistry)	FCH	Amity School of Applied Sciences

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51	Fashion & Design (3 Continent Program) 3 yrs. Programme	FDC	Amity Institute of Design
52	Fashion and Design - 3 yrs. Programme	FDT	Amity Institute of Design
53	Management (Finance & Accounting-Specialisation)	FIN	Amity Business School
54	Fine Arts	FNA	Amity Institute of Design
55	Front Office Operations	FOO	Amity School of Hospitality
56	French	FRE	Amity School of Liberal Arts & Foreign Languages
57	Fashion & Design (3 Continent Program) 4 yrs. Programme	FSC	Amity Institute of Design
58	Fashion and Design - 4 yrs. Programme	FST	Amity Institute of Design
59	Military Training Foundation**	GEN	Amity Business School
60	German	GER	Amity School of Liberal Arts & Foreign Languages
61	Hospital Administration (Part-Time) Working Professionals	HAP	Amity Medical School
62	History	HIS	Amity School of Liberal Arts & Foreign Languages
63	Hotel Mgmt. & Catering Technology (4 yrs. Programme)	HMC	Amity School of Hospitality
64	Management (HRM-Specialisation)	HRM	Amity Business School
65	Home Science	HSC	Amity Medical School
66	Hydro System and Technology Management Engineering	HSE	Amity School of Engineering and Technology
67	Hospitality (3 yrs. Programme)	HTM	Amity School of Hospitality
68	Humanities	HUM	Amity School of Liberal Arts & Foreign Languages
69	Management (International Business-Specialisation)	IBM	Amity Business School
70	Information Technology (Non engineering)	IFT	Amity School of Engineering and Technology
71	Interior Design (4 yrs program)	IND	Amity Institute of Design
72	Information Technology (Engineering)	INE	Amity School of Engineering and Technology
73	Industrial Production Engineering	IPE	Amity School of Engineering and Technology
74	Internet of Things	ITE	Amity School of Engineering and Technology
75	Management (Information Technology-Specialisation)	ITM	Amity Business School
76	Journalism (3 Continent Program)	JRC	Amity School of Communication

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77	Journalism (Global Study Programme)	JRG	Amity School of Communication
78	Journalism	JRN	Amity School of Communication
79	Foreign Language	LAN	Amity School of Liberal Arts & Foreign Languages
80	Law	LAW	Amity School of Law
81	Linguistics	LIN	Amity School of Liberal Arts & Foreign Languages
82	Laser Technology	LOE	Amity School of Engineering and Technology
83	Agri Business (Management)	MAB	Amity Business School
84	Mechanical Engineering (3 Continent Program)	MAC	Amity School of Engineering and Technology
85	Mechanical Engineering	MAE	Amity School of Engineering and Technology
86	Banking and Finance	MBF	Amity Business School
87	Machine Design Engineering	MDE	Amity School of Engineering and Technology
88	Mechanical Engineering (Part-time / weekend)	MEP	Amity School of Engineering and Technology
89	Management (3 Continent Program)	MGC	Amity Business School
90	Management (Global Study Programme)	MGG	Amity Business School
91	Management (General)	MGT	Amity Business School
92	Hospital Administration	MHA	Amity Medical School
93	Hospital and Health Care	MHM	Amity Business School
94	Human Resource Management	MHR	Amity Business School
95	International Business	MIB	Amity Business School
96	Management (Marketing & Sales-Specialisation)	MKT	Amity Business School
97	Machine Learning Engineering	MLE	Amity School of Engineering and Technology
98	Medical Lab Technology	MLT	Amity Medical School
99	Marketing and Sales	MMS	Amity Business School
100	Management (Sustainability Management)	MSM	Amity Business School
101	M.Sc-Nursing (Medical Surgical Nursing)	MSN	Amity College of Nursing
102	Management (Executive-MBA Sustainability Management)	MSP	Amity Business School
103	Mathematics	MTH	Amity School of Applied Sciences

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104	Management (Executive MBA for Working Professionals)	MWP	Amity Business School
105	Nanotechnology	NAT	Amity School of Engineering and Technology
106	Network & Cyber Security (Engineering)	NCE	Amity School of Engineering and Technology
107	Nano-Science Research	NSR	Amity School of Engineering and Technology
108	Network Technology & Management	NTM	Amity School of Engineering and Technology
109	Nursing	NUR	Amity College of Nursing
110	M.Sc-Nursing (Obstetric & Gynaecological Nursing)	OGN	Amity College of Nursing
111	Optometry (Practitioner)	OPP	Amity Medical School
112	Optometry	OPT	Amity Medical School
113	Orthodontics	ORT	Amity Medical School
114	Performing Arts	PAR	Amity School of Liberal Arts & Foreign Languages
115	M.Sc-Nursing (Paediatric Nursing)	PDN	Amity College of Nursing
116	Physical Education	PED	Amity School of Liberal Arts & Foreign Languages
117	Pharmacy	PHA	Amity Institute of Pharmacy
118	Physics	PHY	Amity School of Applied Sciences
119	Planning	PLN	Amity School of Architecture and Planning
120	Political Studies	POL	Amity School of Liberal Arts & Foreign Languages
121	Philosophy, Politics & Economics	PPE	Amity Business School
122	M.Sc-Nursing (Psychiatric Nursing)	PSN	Amity College of Nursing
123	Psychology	PSY	Amity Institute of Behavioural & Allied Sciences
124	Polymer Science & Technology (M.Tech)	PTE	Amity School of Applied Sciences
125	Polymer Science & Technology (M.Sc.)	PTH	Amity School of Applied Sciences
126	Public Health	PUH	Amity Medical School
127	Quality Control Analysis & Instrumentation	QCI	Amity Institute of Biotechnology
128	Robotics Engineering	RBE	Amity School of Engineering and Technology
129	Renewable Energy	RWE	Amity School of Applied Sciences

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130	Renewable Energy (Part-Time)	RWP	Amity School of Applied Sciences
131	Solar and Alternate Energy	SAE	Amity School of Applied Sciences
132	Solar and Alternate Energy (Part-time / weekend programme)	SAP	Amity School of Applied Sciences
133	Stem Cell Technology	SCT	Amity Medical School
134	Social Work	SCW	Amity Institute of Behavioural & Allied Sciences
135	Software Engineering	SFE	Amity School of Engineering and Technology
136	Sanskrit	SKT	Amity School of Liberal Arts & Foreign Languages
137	Spanish	SPA	Amity School of Liberal Arts & Foreign Languages
138	Structural Engineering	STE	Amity School of Engineering and Technology
139	Thermal Engineering	THE	Amity School of Engineering and Technology
140	Transportation Engineering	TRE	Amity School of Engineering and Technology
141	Tourism & Travel (4 yrs. Programme)	TRM	Amity School of Hospitality
142	Tourism (3 yrs. program)	TTM	Amity School of Hospitality
143	VLSI (Very Large Scale Integration)	VDE	Amity School of Engineering and Technology
144	Fashion Design or Apparel Merchandising (Vocational / Skill Minor Track)	VFD	Amity Institute of Design
145	Hospitality / Hotel Mgmt. (Vocational / Skill Minor Track)	VHM	Amity School of Hospitality
146	Tourism & Travel (Vocational / Skill Minor Track)	VTM	Amity School of Hospitality

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Annexure-5

THE GAZETTE OF INDIA: EXTRAORDINARY [PART III —SEC. 4]

UNIVERSITY GRANTS COMMISSION

UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016.

New Delhi, the 19th July, 2016

No. F.1-100/2016(MOOCs/e-content) 1. Preamble.

1.1 Whereas Education has to widen the access to higher education and bring down its cost by using technological advances,

1.2 Whereas Massive Open Online Courses (MOOCs) have emerged as a viable model for imparting education, involving conventional and online education,

1.3 Whereas the Indian version of online learning is being launched on an indigenous platform of learning, named as SWAYAM (Study Web of Active Learning by Young and Aspiring Minds),

1.4 Whereas there is a need to create synergies between the salient features of anytime-anywhere format of e-Learning and the traditional classroom-based chalk and talk method to develop a unique content delivery mechanism, which is responsive to learners' needs and ensures seamless transfer of knowledge across geographical boundaries,

1.5 Whereas there is a need to put in place a regulatory mechanism that would allow seamless connect between the online learning and the regular class room learning,

Now therefore;

University Grants Commission in exercise of the powers conferred by clause (f) and (g) of sub-section (1) of Section 26 of the UGC Act 1956 (No. 3 of 1956), makes the following Regulations, namely;

2. Short title, Application and Commencement:

2.1 These Regulations shall be called the **UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016**.

2.2 These shall apply to all universities established or incorporated by or under a Central Act, a Provincial Act, or a State/Union Territory Act and all institutions recognized by or affiliated to such Universities and all institutions deemed to be universities under Section 3 of the UGC Act, 1956.

2.3 These shall further apply to the transfer of credits of such students who are enrolled as regular/part-time students in any educational institution in India.

2.4 These shall come into force from the date of their publication in the official Gazette.

3. Definitions:

3.1 'Academic Council' is the body empowered to take decisions regarding all academic matters in an institution including the decision regarding permitting online learning courses through SWAYAM.

3.2 'Course' shall mean a paper which is taught for at least one semester as a part of a subject

3.3 'Four quadrant approach': the four Quadrant approach means e-learning system that has the following components:

• Quadrant-I is e-Tutorial: that shall contain: Video and Audio Contentinan organised form, Animation, Simulations,Virtual Labs.

• Quadrant-II is e-Content: that shall contain: PDF/e-Books/illustration, video demonstrations, documents and Interactive simulations wherever required.

• Quadrant-III is Web Resources: that shall contain: Related Links, Open Content on Internet, Case Studies, An ecdotalin formation, Historical development of the subject, Articles.

• Quadrant-IV is Self-Assessment : that shall contain: MCQ, Problems, Quizzes, Assignments and solutions,

Discussion forum topics and setting up the FAQ, Clarifications on general misconceptions.

3.4 'Host Institution' shall mean the institution duly recognised/approved by the regulating authority, to which the PI/SME offering the course belongs.

3.5 'Institution' shall mean any academic institution registered and functioning in India.

3.6 'MOOCs': Massive Open Online Courses (MOOCs) are such online courses which are developed as per the pedagogy stated herein; following the four quadrant approach and made available on the SWAYAM platform of Government of India.

3.7 'MOOCs Guidelines' shall mean guidelines on online learning issued by the MHRD vide its orders dated 11th March 2016 and subsequent addendums issued by the MHRD.

3.8 'National MOOCs Coordinator' (NMC) is a Nation level agency designated as such by the Government, for the purpose of coordinating the production of the online courses and for overseeing their quality in a designated sector of learning.

3.9 'Parent Institution' shall mean the institution/university/college where the student is enrolled as a regular/parttime student.

3.10 'Principal Investigator (PI)': The PI shall be a Subject Matter Expert (SME) belonging to a reputed educational institution, identified and entrusted with the task of developing and delivering MOOCs in a given area by the NMC.

3.11 'Sector' shall mean a particular level of learning such as high school, engineering/non-engineering diploma/degree/post-graduation.

3.12 'Subject' shall mean a discipline (eg Mathematics) taught in an educational institution consisting of specific courses, resulting in awarding of a certificate/diploma/degree.

3.13 'SWAYAM platform' is an IT platform developed and made functional by the Ministry of Human Resource Development of Government of India for the purpose of offering online learning courses on the MOOCs pattern.

4. Online learning courses:

4.1. The online learning courses shall be made available on the SWAYAM Platform by the PI identified by the National MOOCs Coordinator, through the Host Institution, as per the schedule finalised by him/her.

4.2. The SWAYAM shall notify to the Registrars of all the Institutions, on 1st June and 1st November every year, the list of the online learning Courses going to be offered in the forthcoming Semester.

4.3. All the Institutions shall, within 4 weeks from the date of notification by SWAYAM, consider through their Competent Authority the online learning courses being offered through the SWAYAM platform; and keeping in view their academic requirements, decide upon the courses which it shall permit for credit transfer.

Provided that an Institution can only allow up to 20% of the total courses being offered in a particular program in a Semester through the online learning courses provided through SWAYAM platform.

4.4. While making this decision, the Academic Council may, *interalia*, consider allowing online courses of SWAYAM if:

a) There is non-availability of suitable teaching staff for running a course in the Institution or

b) The facilities for offering the elective papers (courses), sought for by the students are not on offer in the Institution, but are available on the SWAYAM platform.

c) The courses offered on SWAYAM would supplement the teaching-learning process in the Institution.

4.5 Every student,in the class of the institution,offering a particular paper (course) would be required to register for the MOOCs for that course/paper.

4.6 While allowing the online learning Courses offered by SWAYAM, it shall be ensured that the physical facilities like Laboratories, computer facilities, library etc, essential for pursuing the courses shall be made available free and in adequate measure by the parent institution.

4.7 The parent institution must designate a course coordinator/facilitator to guide the students throughout the course and to facilitate/conduct the Lab/Practical sessions/examinations.

5. Evaluation and Certification of MOOCs

5.1. The host institution and the PI shall be responsible for evaluating the students registered for the MOOCs course launched by him/her.

5.2. The evaluation should be based on predefined norms and parameters and shall be based on a comprehensive evaluation throughout the length and breadth of course based on specified instruments like discussions, forums,quizzes, assignments, sessional examinations and final examination.

6 THE GAZETTE OF INDIA : EXTRAORDINARY [PART III —SEC. 4

5.3. Whereas an online examination would be the preferred mode, the PI shall be authorised to decide on the mode of conducting the final examination. This shall be announced in the overview of the Course at the time of offering the course.

5.4. In case, apen and paper final examination is to be conducted, the same shall be offered through any college/school volunteering to conduct the same. The decision in this respect will be of the PI and the host institution.

5.5. After conduct of the examination and completion of the evaluation, the PI through the host institution shall award marks/grade as per the evaluation scheme announced.

5.6. The final marks/grade shall be communicated to the students as well as the parent institution of the student, within 4 weeks from the date of completion of the final examination.

5.7. The parent Institution shall, incorporate the marks/grade obtained by the student, as communicated by the Host Institution through the PI of the SWAYAM course in the marks sheet of the student that counts for final award of the degree/diploma by the University with the proviso that the programs in which Lab/Practical Component is involved, the parent institution will evaluate the students for the practical/Lab component and accordingly incorporate these marks/grade in the overall marks/grade

5.8. A certificate regarding successful completion of the MOOCs course shall be signed by the PI and issued through the Host Institution and sent to the Parent Institution.

6. Credit Mobility of MOOCs

6.1. The parent Institution shall give the equivalent credit weightage to the students for the credits earned through online learning courses through SWAYAM platform in the credit plan of the program.

6.2. No university shall refuse any student for credit mobility for the courses earned through MOOCs.

7. Amendment required in University Rules and Regulations for Seamless Integration of MOOCs

7.1 Every Institution, shall within 4 weeks from the date of issue of these Regulations, shall decide through their Competent Authority, the amendments required in their Ordinances, Rules, Regulations etc to incorporate provisjons of these Regulation.

8. Transitory Measures

8.1 The UGC shall notify a Standing committee to resolve any issues that may arise in the implementation of these regulations during the transition period of three years.

Prof. JASPAL S. SANDHU, Secy. UGC

[ADVT.-III/4/Exty./182 (113)]

AMITY UNIVERSITY HARYANA
Amity Education Valley, Gurgaon (Manesar)

Course Manual

Name of Institution:
Programme:
Batch :
Prerequisite:

Course/ Course Credit :	**Course code:**
Faculty Name:	**Semester:**
Designation:	**Email:**

1. **Course Overview:** (About the Course)

2. **Course Coverage:**
   Module 1
   Module 2:
   Module 3:
   Module 4:

3. **Learning Outcomes:** (of the Course)

4. **At the end of the course students will be able to:** (Definitive Outcomes)
5. **Resources: (APA Style)**
   a) **Main text:**
   b) **Additional Texts:**
   c) **Other readings:**

6. **Detailed Session Plan:**
7. **Total No of Sessions –**
   Module-1:

Session	**Topics**	**Pedagogical Technique/s Used**	**Additional Readings/ Assignments/Websites/Links to online resources**	**Assessment criteria** (based on specific Pedagogical Technique)

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Module-2:

Session	**Topics**	**Pedagogical Technique/s Used**	**Additional Readings/ Assignments/Websites/Links to online resources**	**Assessment criteria** (based on specific Pedagogical Technique)

8. Assessment Scheme(more columns may be added for assessment):

Components	Assessment 1	Assessment 2	Assessment 3	Assessment 4	External
Weightage (%)					70

9.Components to Choose From – MOOCS, Day with Expert, Case Study, Teach Back, Quiz, Mini Survey, Simulation/Games, Brain Storming/Argumentation, Flipped Classroom. However, this list is not exhaustive. Faculty may use any other suitable pedagogical technique to ensure optimal learning.

10.Detailed Session Plan:

Module I: Introduction
Learning Outcome/s:
Question(s) for discussion in class:

Module II:
Learning Outcome/s:
Question(s) for discussion in class:

Module III:
Learning Outcome/s:
Question(s) for discussion in class:

Module IV:
Learning Outcome/s :
Question(s) for discussion in class

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ACADEMIC PLANNING WORKSHEET

Name of the Student _____
Name of the Programme: BBA

Total Credit requirement: 150

Technology (6 Cr)
MGT2101 Computers in Management
MGT2302 Mgt Information System
Concentration Electives (12 Cr in case of specialization in IT)

Values and Ethics (1 Cr)
MGT2206 Human Values and Professional Ethics (Conc Elective)
BEH2551 Ind. , Society &Nations

Communication and Behavioural Sciences (11 Cr)
CSS2151 Effective Listening
CSS2251 Presentation Skills
CSS2351 Reading and Comprehension
CSS2451 Corporate Communication
CSS2551 Employability Skills
CSS2651 Workplace Communication
BEH2151 Understanding Self ....
BEH2251 Problem Solving .....
BEH2351 Group Dynamics....
BEH2451 Stress & Coping Strategies
BEH2651 Interpersonal Communication and Relationship Management .

Environmental Awareness (4 Cr)
MGT2152 Environmental Studies (4 Cr)
Open Electives (12 Cr in case minor track is selected as Env.Management)

Global Exposure (15 Cr)
Foreign Language (12 Cr)

MGT2501 International Business Management
Study Abroad (3 Cr-Concentration Elective)
Open Elective (18 Cr in case minor is selected as European Studies/ German Studies/ French Studies)

Business Fundamentals (56Cr)

MGT2151 Management Foundations
MGT2102 Financial Accounting
MGT 2103 Managerial Economics
MGT2251 Marketing Management
MGT2201 HRM

MGT2202 Business Statistics
MGT2203 Corporate Accounting
MGT2351 Organizational Behaviour
MGT2301 Financial Management
MGT2303 Cost Accounting
MGT2304 Analytical Decision Making
MGT2451 Business Environment
MGT2401 Prodn& Operation Mgt
MGT2402 Research Methodology and Report Preparation
MGT2403 Management Accounting
MGT2551 Operational Research
MGT2502 Entrepreneurship Devlp
MGT2651 Business Law
MGT2601 Business Policy and Strategic Management

Business Depth (24 Cr)

Open Electives (18 Cr)

15 Credits to be earned through Dissertation and Summer project

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Sample Programme Profile Sheet

Name of Programme: BA (Honours) Economics Total 150 Credits

Semester 1(27 Credits) **Core Courses 4 (12 Credits)** **Concentration Electives(3 Credits)** _____ _____ _____ **Open Electives (12 Credits)** • **Foreign Language(3 Credits)** _____ • **Effective Listening (1 Credit)** • **Understanding Self for Effectiveness (1 Credits)** • **Environmental Studies (4 Credits)** • **Others(3Credits)** ----------	**Semester 2 (24 Credits)** **Core Courses 4 (13 Credits)** **Concentration Electives (3 Credits)** _____ _____ _____ **Open Electives(8 Credits)** • **Foreign Language (3 Credits)** _____ • **Presentation Skills (1 Credit)** • **Problem Solving and Creative thinking (1 Credit)** • **Others 3Credits** ----------
Semester 3(23Credits) **Core Courses 4 (13Credits)** **Concentration Electives(3 Credits)** _____ _____ _____ **Open Electives(7 Credits)** • **Foreign Language (2 Credits)** _____ • **Reading & Comprehension(1 Credit)** • **Group Dynamics and Team Building (1 Credit)** • **Others (3Credits)** ----------	**Semester 4(22 Credits)** **Core Courses 4 (12 Credits)** **Concentration Electives (3 Credits)** _____ _____ _____ **Open Electives(7 Credits)** • **Foreign Language (2 Credits)** _____ **Corporate Communication(1 Credit)** • **Stress and Coping Strategies (1 Credit)** • **Others(3Credits)** ----------
Semester 5 (28 Credits) **Core Courses 4+ Summer Project (18 Credits)** **Concentration Electives 3 Credits** _____ _____ _____ **Open Electives 7 Credits** • **Foreign Language (2 Credits)** _____ • **Employability Skills(1 Credit)** • **Individual, Society and Nation (1 Credit)** • **Others(3Credits)** ----------	**Semester 6(26 Credits)** **Core Courses 3+ Dissertation (18 Credits)** **Concentration Electives (3 Credits)** _____ _____ _____ **Open Electives 5 Credits** • **Communication Skills (1 Credit)** _____ • **Workplace Communication (1 Credit)** • **Others (3Credits)** ----------

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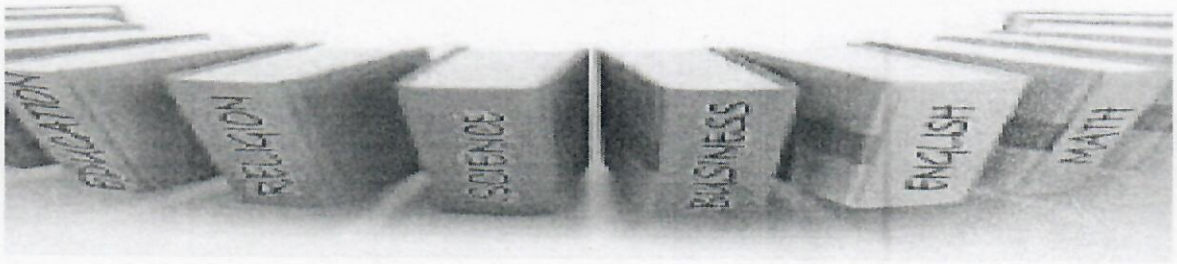
Amity Business School

Master of Business Administration (Business Analytics)

FLEXILEARN
-Freedom to design your degree



Curriculum & Scheme of Examination

2021

AMITY UNIVERSITY HARYANA

GURUGRAM

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Master of Business Administration (Business Analytics)

Programme Mission:

The mission of the MBA programme is to foster an environment of academic excellence in Business Management through research and innovation, industry integration, internationalization and extension activities and develop highly trained and employable professionals with specialization in the area of Marketing & Sales, Finance, Banking & Finance, Human Resource Management, International Business, Information Technology, E-Commerce and Hospital & Healthcare, who are socially responsible and globally minded professional to meet the current and emerging needs of business and society.

Programme Description:

The two year full time Masters in Business Administration programme is to educate and prepare students with the knowledge, analytical ability, and management perspectives and skills needed to lead, to motivate and to manage diversified workforce, rapid technological change and competitive marketplace while considering the principles of ethical, legal and corporate governance fundamentals.

Programme Outcome (PO):

PO1	Apply the knowledge of marketing, human resource management, finance and other functional areas of management to solve complex management issues in volatile business environment
PO2	Student shall have ability to acquire & evaluate new knowledge through Business Research Methods, have the ability to identify, define, investigate, and solve critical business issues using management principles, analyse data/information and interpret results for reaching optimum solutions.
PO3	Student shall be able to understand global issues from different perspectives, recognize the opportunities to improve the business value chain as an entrepreneur and shall develop and display basic business acumen & business skills and be able to apply different forms of communication in diversified cultural settings.
PO4	Student shall able to critically thinkto assess societal, health, safety, legal, and cultural issues and apply range of strategies for solving a problem and decision making
PO5	Student shall be able to practice ethical principles and commit to professional ethics and responsibilities and norms of the management practice.
PO6	Student shall develop range of Leadership skills and shall demonstrate excellent interpersonal skills, understanding of group dynamics and effective teamwork, including awareness about personal strengths and limitations.
PO7	Student shall be able to communicate effectively on complex management activities with various stakeholders being able to comprehend and write effective reports, design documentation, make effective presentations, and give & receive clear instructions.
PO8	Student shall recognize the need for, and have the ability to engage in independent and life-long learning in the broadest context of technological change.
PO9	Student shall be able to create, select, and apply appropriate techniques, resources, and modern management and IT tools including prediction and modeling to make decisions.

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Supporting document for PSOs (Programme Specific Outcomes) of MBA BA

PSO 1			PSO 2	PSO 3		PSO4	
Student shall be able to describe fundamental knowledge of general and functional management courses & relevant technological tools to identify opportunities and apply appropriate business strategies & solutions.			Student shall be able to apply knowledge of business analytics to solve business problems using appropriate technology such as machine learning/artificial intelligence and software solutions such as R, Python, SPSS, SAS to make holistic judgment. Student shall also apply technical skills to design effective advanced analytics models and simulations for effective decision making.	Student shall be able to apply specific and cross functional knowledge to solve critical business and management issues, write effective reports, demonstrate leadership and interpersonal skills, understanding of group dynamics and effective teamwork, including awareness about personal strengths and limitations.		Student shall be able to communicate effectively on complex management issues, make effective presentation with various stakeholders being able to comprehend and shall be able to practice ethical principles, professional values and fulfil social responsibilities and engage in life-long learning	
Fundamental Business Management	**Functional Management domain**	**Research, Analysis and Technical Management Domain**	**Business Analytics**	**NTCC**		**Communication**	**Value Added**
Management Process and Organizational Behaviour	Accounting for Management	Operations and Supply Chain Management	Datamining	Financial Analytics	Summer Internship Evaluation	Basics of Communication	Self Development & Interpersonal Skills
Economics for Management	Marketing Management	Business Research Methods	Predictive Analytics-I Machine Learning using R	Supply Chain Analytics	Dissertation (Analytics Project)	Corporate Communication	Behavioural Communication & Relationship Management
Strategic Management	Human Resource Management		Predictive Analytics-II Machine Learning using Python	HR Analytics		Interpersonal Communication	Leading Through Teams
Total Quality Management	Financial Management		Big Data Analytics-Hadoop	Marketing Analytics		Cross Cultural Communication	Professional Excellence
	Consumer Behaviour		Financial Decision Analysis	Data Privacy and Data Security Laws		**Foreign Business Language**	
			Visual Analytics- Tablue/ Power BI	Statistical Techniqu		Chinese	French

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				es			
			Econometrics	Excel for Decision Making		Portuguese	German
			Programming for Analytics using R	Optimization Techniques		Korean	Spanish
			Programming for Analytics using Python	Database Management System		Japanese	Russian

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131108 MBA-Business Analytics (Total Credits-110)

Programme Structure-2021

FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
BUA4101	Management Process and Organizational Behaviour	3	-	-	3
BUA4102	Accounting for Management	3	-	-	3
BUA4103	Marketing Management	3	-	-	3
BUA4104	Statistical Techniques	3	-	-	3
BUA4105	Excel for Decision Making	1	-	2	2
BUA4106	Optimization Techniques	2	-	2	3
BUA4107	Database Management System	3	-	-	3
BUA4108	Human Resource Management	3	-	-	3
	Open Electives				**5**
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development& Interpersonal Skills	1	-	-	1
LAN4151 LAN4152 LAN4153 LAN4154 LAN4155 LAN4156 LAN4157 LAN4158 LAN4159	Foreign Business Language-I French-I German-I Spanish-I Russian-I Chinese-I Portuguese-I Korean-I Japanese-I Hindi-I **	3	-	-	3
	TOTAL				**28**

** Hindi as Foreign Language for Foreign National Students

SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
BUA4201	Financial Management	3	-	-	3
BUA4202	Operations and Supply Chain Management	3	-	-	3
BUA4203	Econometrics	2	-	2	3
BUA4204	Business Research Methods	1	-	2	2
BUA4205	Economics for Management	2	-	-	2
BUA4206	Programming for Analytics using R	2	-	2	3

BUA4207	Programming for Analytics using Python	2	-	2	3
BUA4208	Consumer Behaviour	3	-	-	3
	Open Electives				**5**
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioural Communication & Relationship Management	1	-	-	1
LAN4251 LAN4252 LAN4253 LAN4254 LAN4255 LAN4256 LAN4257 LAN4258 LAN4259	Foreign Business Language-II French-II German-II Spanish-II Russian-II Chinese-II Portuguese-II Korean-II Japanese-II Hindi-II	3	-	-	3
	TOTAL				**27**

SUMMER INTERNSHIP

THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
BUA4301	Strategic Management	3	-	-	3
BUA4302	Datamining	2	-	2	3
BUA4303	Predictive Analytics-I Machine Learning using R	2	-	2	3
BUA4304	Predictive Analytics-II Machine Learning using Python	2	-	2	3
BUA4305	Big Data Analytics- Hadoop	2	-	2	3
BUA4306	Financial Decision Analysis	2	-	2	3
BUA4307	Visual Analytics- Tablue/ Power BI	2	-	2	3
BUA4335	Summer Internship Evaluation	-	-	-	6
	Open Electives				**4**
CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading Through Teams	1	-	-	1
LAN4351 LAN4352 LAN4353 LAN4354 LAN4355 LAN4356 LAN4357 LAN4358 LAN4359	Foreign Business Language-III French-III German-III Spanish-III Russian-III Chinese-III Portuguese-III Korean-III Japanese-III Hindi-III	2	-	-	2
	TOTAL				**31**

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FOURTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
BUA4401	Total Quality Management	2	-	-	2
BUA4402	Financial Analytics	2	-	2	3
BUA4403	Supply Chain Analytics	2	-	2	3
BUA4404	HR Analytics	2	-	2	3
BUA4405	Marketing Analytics	2	-	2	3
BUA4406	Data Privacy and Data Security Laws	2	-	-	2
BUA4437	Dissertation (Analytics Project)	-	-	-	6
	Open Electives				2
CSS4451	Cross Cultural Communication	1	-	-	1
BEH4451	Professional Excellence	1	-	-	1
	TOTAL				24

Syllabus – First Semester

BUA4101	MANAGEMENT PROCESS & ORGANIZATIONAL BEHAVIOR	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure	Basic knowledge of general Management				
Co-requisites	Student must have basic understanding of General Management.				

Catalog Description
To help the students to develop cognizance of the importance of human behaviour.

Course Objective:
The objective of this course is to:
1. Help the students in gaining understanding of the functions and responsibilities of the manager.
2. Provide the student understanding of Human Behaviour in organizations so as to improve his/her managerial effectiveness.

Course Outcome:
Upon successful completion of the course a student will be able to:
CO1: Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in the organization and diversified cultural settings.
CO2: Enable students to describe how people behave under different conditions.
CO3: Analyze the complexities associated, critically evaluate and apply decisions appropriately.
CO4: Enable students to synthesize related information and evaluate options for the most logical and optimal solution so that they would be able to predict and control human behaviour and improve results.

Modules	Blooms level*	Number of hours
Module I: Management vs. Manager Evolution of management thought, Functions of management, Roles and Skills of a manager, Emerging challenges of management.	L1, L2	6
Module II: Organization Nature and structure of organization, Types of organizations, Line and staff relationships, Formal and informal organizations.	L1, L2,	6
Module III: Introduction to Organization Behaviour Overview of organization behaviour and its importance, Organization models.	L1, L2,	6
Module IV: Individual Behaviour Individual behaviour, Perception and learning, Personality, Values & attitudes, Motivation: Concept theory and application	L1, L2, L3, L4, L5, L6	6

Module V: Group Behaviour Group dynamics, Communication, Leadership, Power and politics, Conflicts and negotiation.	L1, L2, L3, L4, L5, L6	6
Module VI: Organizational Culture and Change Management Organisational culture, Organisational change and development, Work stress and its management.	L1, L2, L3, L4, L5, L6	6

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4: Analysis; L5: Synthesis, L6: Evaluation*

Text Books

1. Luthans, F. (2010), Organizational Behaviour, Mcgraw-Hill Education India Pvt.Ltd - New Delhi.
2. Robbins, S.P. (2016), Organizational Behaviour, Sixteenth Edition, Pearson Education.

Reference Books

1. Greenberg, J. & Baron, R.A. (2005), Behaviour in Organizations, Pearson Education.
2. Newstrom John W. and Davis Keith, (1993), Organizational Behaviour: Human Behaviour at Work, Tata McGraw Hill, New Delhi
3. P. Subba Rao (2010), Management and Organisation and Behaviour, Himalaya Publishing House, New Delhi
4. Pierce Gardner with Dunham (2011) Managing Organizational Behaviour. Cengage Learning India.

Modes of Evaluation: Class Test /Home Assignment/ Power Point Presentation/Written Examination

Examination Scheme:

Components	CT	HA	PPT	A	EE
Weightage (%)	15	5	5	5	70

CT: Class Test, HA: Home Assignment, PPT: Power Point Presentation, A: Attendance EE: End Semester Examination

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	-	-	-	-	-	-	-	1	-	-	-
CO2	1	1	-	-	-	-	-	-	-	1	-	-	-
CO3	1	1	-	-	-	-	-	-	-	1	-	-	-
CO4	1	1	-	-	-	-	-	-	-	1	-	-	-

1: strongly related, 2: moderately related and 3: weakly related

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BUA4102	ACCOUNTING FOR MANAGEMENT	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure	Basic knowledge of general Management				
Co-requisites	Student must have basic understanding of General Management.				

Catalog Description

The intent of this course is to acquaint the students with fundamental concepts and processes of accounting so that they are able to appreciate the nature of item presented in the annual accounts of an organization. The student will be able to familiarize with the significant tools and techniques of financial analysis further useful in the interpretation of the financial statements. The aim of this course does not focus on to make the student's expert accountant but to have a good comprehension on the management planning and control systems. However, the principal focus will be related to the interpretation and use of the financial data by non-accounting students to gain the ability of using accounting information as a tool in applying solutions for managerial problems, evaluating the financial performance, and interpreting the financial structure.

Course Objectives

The objective of this course is to:

1. Equip the students to develop the essential ability of all managers, to use complex accounting information as a platform for decision-making. As the course unfolds, students will build an increasingly sophisticated level of understanding of the language of accounting and its key concepts.
2. Develop skills in interpreting earnings statements, balance sheets, and cash flow reports. This ability to analyze financial statements will enable participants to deal more effectively with strategic options for their businesses or business units.

Course Outcome:

On completion of this course, the students will be able to:

CO1: Enable the students to combine practice and theoretical knowledge of financial accounting.

CO2: Demonstrate the decision-making skills to the students in the financial analysis context.

CO3: Develop an ability to identify and analyze complex financial accounting problems and opportunities in real life situations.

CO4: Develop skills in applying management accounting techniques to assist in decision making.

Modules	Blooms Level	Number of Hours
Module 1: Introduction The Financial Accounting Framework, Accounting Policies, Need of Accounting. Users of Accounting Information,	L1, L2, L3	8

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Accounting Cycle, Accounting and Management Control. Balance sheet- Classification Items of Balance Sheet, Formats of Balance Sheet. Preparation of Balance Sheet. Income Statement- Realization vs. Accrual Principle, Format of Income Statement), Preparation of Income Statement (IAS,GAAP&IFRS), Depreciation Accounting.		
Module 2: Measuring and Reporting Measuring and Reporting Assets, Liabilities &Equity:Cost of sales and Inventories, Debentures, Investments, Shareholder Equity; Human Resource Accounting: Valuation of Human Resources, Recording and Disclosure in Financial Statements.	L1, L2, L5	8
Module 3: Analyzing and Interpreting Financial Statements Financial Statement Analysis – Basic Relationship, Overall Measures, Profitability Ratios, Investment Utilization Ratios, Financial Condition Ratios, Making Comparisons. The Statement of Cash Flows-Profit versus Cash, Purpose and Use of Cash Flow Statement, Format of Cash Flow Statement (AS-3), Preparation of Cash Flow Statement (IAS,GAAP&IFRS).	L4, L5, L6	9
Module 4: Management Accounting Emergence of Management Account, Managerial costing and Cost-Volume- Profit Analysis, Budgeting and Budgetary control, Variance Analysis .	L1, L2, L5	5
Module 5: Cost Accounting: Elements of Cost, Cost Classification and Allocation, Cost sheet, Process Costing, Job Costing.	L1, L2, L5	5

*Bloom's Level: L1 – Knowledge; L2-Comprehension, L3 – Application, L4 – Analysis, L5 – Synthesis, L6 - Evaluation

Text Books

1. Anthony, N.R; Hawkings, F. D; Merchant, A.K (2014), Accounting Text and Cases, 13th Edition, McGraw Hill.
2. Ramachandran, N (2011), Financial Accounting for Management, 3rd Edition, McGraw Hill.

Reference Books

1. Bhattacharya, S.K. and Dearden, J, 3rd Edition, Accounting for Management, Text and Cases, Vikas Publishing House
2. Narayanaswamy R (2014), Finanacial Accounting – A Managerial Perspective, Prentice Hall of India.
3. Maheshwari S N; Maheshwari SK and Maheshwari SK, 3rd Edition, A Text Book for Accounting for Management, Vikas Publishing House.
4. Tulsian, P.C (2006), Financial Accounting, Tata McGraw Hill.
5. Banerjee, A (2005), Financial Accounting, Excel Books.
6. Ghosh,T.P (2005), Fundamentals of Management Accounting, Excel Books
7. M.N Arora 10th Edition, A Text Book of Cost and Management Accounting, Vikas Publishing House.

Modes of Evaluation: Quiz/Assignment/Presentation/Written Examination

Examination Scheme:

Components	Group Presentation	In Class Quiz	Class Test/Mid Term Exam	Attendance	External Exam
Weightage (%)	10	5	10	5	70

CO, PO and PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	-	1	1	--	--	--	--	--	--	1	--	--	--
CO2	1	1	1	--	--	--	1	--	--	1	--	--	--
CO3	1	1	--	1	--	--	--	--	--	1	--	--	--
CO4	1	1	--	--	--	--	--	--	--	1	--	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4103	MARKETING MANAGEMENT	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

Marketing management emphasizes upon the practical aspects of marketing concepts and management functions performed by professionals. This is a beginner's course in Marketing and shall cover the basics. The course helps in developing an understanding of the challenges of marketing management in manufacturing and service industries: analyzing marketing environments; evaluating strategic alternatives and designing and implementing marketing programmes involving decisions about products/services, pricing, distribution and promotion. The course serves to familiarize participants with basic marketing concepts, environment, strategies and methodology.

Course Objectives

The objectives of this course are to:

1. Provide the students exposure to modern marketing concepts, tools and techniques.
2. Enhance student's knowledge to prepare for general management responsibilities by focusing on the input of the marketing perspective across all functions.
3. Explain different consumer-specific characteristics as well as certain psychological processes influencing buying behavior.
4. Provide different dimensions of marketing such as STP, business environment, distribution channels, marketing communication, and social media marketing to enable the students to design and analyze the functional aspects in emerging market.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Define the holistic marketing efforts to develop, design and implement marketing programs. They will also be able to examine challenges, responsibilities, and risks managers face in today's workplace.

CO2: Illustrate a comprehensive knowledge about how values are created, communicated and delivered to the target audiences.

CO3: Explain how to control the elements of the marketing mix—product policy, channels of distribution, communication, and pricing—to satisfy customer needs profitably

CO4: Design strategic approaches to manage different marketing dimensions in uplifting the consumer as well as business market.

CO5: Describe the marketing communication and its applicability along with understanding new-age media, advertising, sales promotion, personal selling etc.

Modules	Blooms Level*	Number of hours
Module I: Understanding Marketing in New Perspective Fundamentals of Marketing, Customer Value and Satisfaction, Customer Delight, Conceptualizing Tasks and Philosophies of Marketing Management, Value Chain, Scanning the Marketing Environment, Marketing Mix Elements, Difference between marketing and Selling, Relationship marketing, Social marketing, Strategic Planning in marketing, formulating the marketing plan.	L1, L2	8
Module II: Analyzing Consumers & Selecting Markets The factors influencing consumer behavior. The stages in the buying process, the buying decision making process, factors effecting the buying decision., Market Segmentations, Levels of Market Segmentations, Patterns, Procedures, Requirement for Effective Segmentation, Evaluating the Market Segments, Selecting the Market Segments, Tool for Competitive Differentiation, Developing a Positioning Strategy.	L1, L2, L4	7
Module III: Managing Product & Pricing Strategies Classification of products, New Product development, stages of product development, Adoption process, Product mix decisions and line management, Length, width and depth of a line, line analysis, and brand management, product life cycle, stages in lifecycle and factors affecting each stage, Managing product life cycles. Setting the price, adapting the price, initiating and responding the price changes.	L1, L2, L3	7
Module IV: Designing: Managing the Integrated Communication Channel functions and flows. Channel design decisions. Channel management decisions. Channel dynamics; vertical horizontal and multi channel marketing systems. Market Logistics decisions. Effective Communication, Integrated Marketing Communication, Marketing Communication Process, Promotion mix, Advertising, Personal Selling, Sales Promotion and Publicity and Public Relations, Direct Marketing.	L1, L2, L3	7
Module VI: Emerging Trends in Marketing An Introduction to Internet Marketing, Multi Level Marketing, E-Marketing, Green Marketing, Event Marketing, Types of Events, Sponsorship, Cause Related Marketing, Marketing for Non Profit Organizations Marketing Strategies for Leaders, Challengers, Followers and Nichers.	L1, L2, L5	7

*Bloom's Level: *L1-Knowledge; L2-Comprehension; L3-Application; L4-Anaylysis; L5-Synthesis; L6-Evaluation*

Text Book

Kotler, Keller, Koshi& Jha, (2015), Marketing Management (14th ed.)- A South Asian Perspective, Pearson Education.

Reference Books

1. V S Ramaswamy & S Namakumari, (2009), Marketing Management; Planning, Implementation & Control (5th ed.)McMillan.

2. S.Neelamegham, (2009) Marketing in India, Vikas publishing house.
3. Saxena, Ranjan (2016), Marketing Management, 5th edition, Tata McGraw Hill, New Delhi.

Modes of Evaluation: Quiz/Assignment/Seminar/Written Examination

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; A: Attendance.

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	1	1	--	1	1	--	1	1	1	--	1
CO2	1	1	1	1	--	1	1	--	1	1	1	--	1
CO3	1	2	1	1	--	1	1	--	1	1	1	--	2
CO4	1	1	1	1	--	1	2	--	1	1	1	--	1
CO5	1	1	1	2	--	1	2	--	1	1	1	--	2

1: strongly related, 2: moderately related and 3: weakly related

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BUA4104	STATISTICAL TECHNIQUES	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course offers the understanding on identification of data, analysis and interpretation of data using basic quantitative tools & techniques. In this course, students can apply the quantitative techniques in the analysis of statistical and economic problems. Probability and hypothesis testing are major topics to be covered. Basic understanding of statistical concepts helps in deciding on the suitable technique for data analysis and also to interpret results.

Course Objectives

The objectives of this course are to

1. Familiarize the students with basic quantitative tools & techniques for data analysis.
2. Equip the students with the concept of probability, hypothesis testing, data identification, and data analysis and interpretation using statistical tools.
3. Facilitate hands on experience to various statistical problems.

Course Outcomes

On completion of this course, the students will be able to

CO1: Explain the basic concepts of probability and Bayes Theorem and manipulate the probability models that are most widely used in economics, and apply them correctly and carry out the appropriate statistical analysis.

CO2: Apply the appropriate statistical tools and techniques for data analysis of economic models.

CO3: Apply graphical, numerical methods and Excel to make calculate and illustrate descriptive statistics and critically evaluate the basis for these calculations.

CO4: Identify the appropriate regression model to apply to an economics dataset and also the problems associated with these models such as autocorrelation. Multicollinearity, heteroscedasticity, non Stationarity data series that may affect regression analyses.

Modules	Blooms level*	Number of hours
MODULE 1: Probability Theory Elements of Probability Theory: Sample space Events, meaning of probability Classical definition of probability, The addition rule, Multiplication Rule, Theorems of total probability, conditional and statistical independence, limitation of classical definition, Bayes formula, random variable, expectation and variance of random variable (for random sampling with or without replacement)	L1, L2,L3	9
MODULE 2: Random Variables and Probability Distributions Defining random variables; probability distributions; expected	L1, L2,L3	9

values of random variables and of functions of random variables; properties of commonly used discrete and continuous distributions (uniform, binomial, normal, poisson and exponential random variables).		
MODULE 3:Introduction to Estimation Methods of sampling; sampling distribution of a statistic; distribution of the sample mean; sampling error and standard error of a statistic with special reference to the mean; Point and interval estimation of parameters; properties of an estimator; unbiasedness, relative efficiency and consistency.	L1, L2,L3	9
MODULE 4: Hypothesis Testing Testing of Hypothesis; type I and type II errors, power of a test; large sample tests, "t" test for the mean; one tail and two tail tests for difference of means; z-test, f-test, Chi-square test for (i) goodness of fit and (ii) independence of two attributes.	L1, L2,L3	9

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4: Analysis; L5:Synthesis, L6:Evaluation*

Text Books

1. Gupta S.C, *Fundamentals of Statistical Methods*, Sultanchand& Sons.
2. Allen Webster, Applied Statistics for Business and Economics, (3rd edition), McGraw Hill, International Edition 1998.
3. Pitman, Australia. M.R. Spiegel (2nd edition), *Theory and Problems of Statistics*, Schaum Series.

Reference Books

1. P.H. Karmel and M. Polasek, *Applied Statistics for Economists* (4th edition)
2. N.G.Das, *Statistical Methods* (Edition 1&2), Tata McGraw Hill

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	3	1	2	1	--	--	3	1	1	2	1	--	--
CO2	1	1	3	1	--	--	3	1	2	2	1	--	--
CO3	1	2	2	1	--	--	3	1	1	2	1	--	--
CO4	2	1	3	1	--	--	3	1	2	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

BUA4105	**EXCEL FOR DECISION MAKING**	L	T	P	C
Version 1.1	Latest Approved	1	0	2	2
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

Microsoft Excel is a very popular business productivity application for the management and manipulation of data. With the right training and understanding of Excel, businesses and individual users can unlock the world of opportunities that this powerful business application offers. This course will provide all the tools necessary to create and use basic and advanced spreadsheets.

Course Objectives

The course enables students to:

1. Explore the Microsoft Excel as a tool for facilitating solutions for business problems/decision making
2. Have an understanding on the advanced functions of excel through guided demonstration.
3. Enhance excel skills of students and develops a set of fundamental skills that are essential for survival in business amid global uncertainty.

Course Outcomes

On completion of this course, the students will be able to

CO1: Manage data in excel.

CO2: Explore the functions of basic and advanced excel.

CO3: Analyze the real time series dataset.

CO4: Explain insights about decision making in business.

Modules	Blooms level*	Number of hours
Module 1: Overview of Excel **Contents:** Introduction to Spreadsheets: data entry using autofill, sort & filter feature, widening rows and columns, inserting & deleting rows and columns, creating lists, wrapping & merging text and cells. Introduction to basic data formatting, saving work in excel. Protecting & sharing workbooks, freeze panes, understanding normal, page layout and page break preview in excel, page orientation and print area in Excel. How to adding hyperlinks to cells, inserting images, objects, equations and symbols. Introduction toFigures and Charts: Inserting bar charts, pie charts, column charts and line charts in spreadsheets, formatting and resizing the chart.	L1, L3, L4	4
Module 2: Data Cleansing and Lookups **Contents:** Textual functions- TRIM, SUBSTITUTE, CLEAN, STORED AS TEXT, DE-DUPLICATING, LEN & FIND,	L1, L3, L4	4

CONCATENATE, UPPER, LOWER, REPLACE functions and Data validation; Look up functions- VLookup, multiple VLook up together and HLookup with index and match; Basics of Macros.		
Module 3: Logical Functions and Pivot Tables **Contents:** Basic functions- ROUNDING, SUM, PRODUCT, MIN, MAX, AVERAGE, CONDITIONAL COUNTS, LARGE, RANK, VAR, Std Dev, CONDITIONAL SUMS. Date functions and Time functions. Logical functions- IF, THEN, AND, OR, NOT, COUNTIFS, SUMIFS, TRUE, FALSE Functions. Financial functions: Time value of money- Present value, Future value, PMT with beginning date, PMT with ending date, NPV, Goal seek, Scenario Manager. Pivot table, pivot charts and conditional formatting.	L1, L3, L4	4
Module 4: Simulation and Decision Making **Contents:** Basics of simulation, Monte Carlo Exoperiment, Decision Analysis (DA): Terminology, DA without probabilities (Maximax, Maximin, Minimax Regret), DA with probabilities: (Decision point / branch, chance event / branch, Decision tree with examples.	L1, L3, L4	4

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	Written Test	Practical	Viva	File/Assignment	Attendance
Weightage (%)	20	30	30	15	5

Text Books

1. Carlberg CG, "*Business Analysis with Microsoft Excel* (2nd Edition)", Que Publishing, ISBN 0974415626.
2. Harvey G (2012), "*Excel 2013 for Dummies*" John Wiley & Sons, ISBN 9781118559703

Reference Book

Excel 2013 for Dummies by Greg Harvey, John Wiley & Sons, 2012, ISBN 9781118559703

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	-	-	-	-	-	-	-	1	-	1	-	-
CO2	-	-	-	-	-	-	-	-	1	-	1	-	-
CO3	-	-	-	-	-	-	-	-	1	-	1	-	-
CO4	-	-	-	-	-	-	-	-	1	-	1	-	-

1: strongly related, 2: moderately related and 3: weakly related

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BUA4106	OPTIMIZATION TECHNIQUES	L	T	P	C
Version 1	Latest approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

The main objective of the course is to provide the students the insight into structures and processes that management science can offer and the enormous practical utility of its various utility. The course is designed to introduce the fundamental tools of MS and their application to real life business problems. It will help students to take well informed decisions in their corporate life.

Course Objective:

The main objectives of this course are to:

1. Take decision under certain, uncertain and risky environment
2. Understand various business problems and applying a suitable MS model
3. Formulate Linear Programming Problem and solving using graphical and Simplex methods
4. Design the transportation and assignment problem, solve them and interpret the result
5. Design and solving the problems of game theory for the optimal solution
6. Describe the application of simulations.

Course Outcomes

On completion of this course, students shell be able to:

CO1. To recall the evolution of OR and specify currently used OR models for different business situations

CO2. To describe a business problem and analyzing it for the optimum solution

CO3. To illustrate different prevailing constraints while finding out optimum solution

CO4. To evaluate various models to take better and improved decisions

Modules	Blooms level*	Number of hours
Module I: Introduction Optimization Techniques: uses, scope, applications in managerial decision making; assumptions of management science models, decision making environments: decisions under certainty, uncertainty and risk situation; decision tree approach and its applications.	L1, L2, L3	6
Module II: Linear Programming Problems Linear Programming Problems: Modeling and Solution Methods-graphical method, simplex methods, problems with maximization and minimization objects, duality and its managerial interpretation; Sensitivity analysis: meaning, Change in Objective Function Coefficients, Change in Right Hand Side Values, Change in Availability of resources and Addition of a new variable.	L1, L2, L3, L4, L6	8

Module III: Transportation and Assignment Model Transportation model: various methods of finding initial basic feasible solution and optimal solution, MODI method, degeneracy, unbalanced problems, prohibited route problems, maximization transportation problems Assignment Model: Hungarian method for solution, unbalanced assignment problems, restrictions on assignments, travelling salesman problem.	L1, L2, L3, L4, L6	8
Module IV: Game Theory Two-Person Zero Sum Games, Pure Strategies: Games with Saddle Point, Mixed Strategies: Games without Saddle Point, Principle of Dominance, and Solution Methods for Games without saddle point – Algebraic Method, Arithmetic Method, Graphical Method.	L1, L2, L3, L4, L6	8
Module VI: Simulation Simulation: meaning, types of simulation, steps of simulation process, Monte Carlo simulation, applications of simulation	L1, L2, L3, L4, L6	6

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books

1. Vohra, N.D. (2007). *Quantitative Techniques in Management (3rd ed.)*. New Delhi, India: Tata McGraw-Hill Publishing Company Limited
2. Sharma, J.K. (2013). *Operation Research: Theory and Applications (5th ed.)*. New Delhi, India: Macmillan Publishers India limited
3. Jaishankar, S. (2010). *Operation Research.* New Delhi, India: Excel Books
4. Kalavathy, S. (2002). *Operation Research (2nd ed.)*. New Delhi, India: Vikas Publishing House
5. Kapoor, V.K. (2008). *Operation Research: Techniques for Management (7th ed.)*. New Delhi, India: Sultan Chand and Sons

Reference Books

1. Frederick Shiller & Gerald J Liberman. *Introduction to Operation Research.* New Delhi, India: Tata McGraw- Hill Education (India) Private Limited
2. Taha, H.A. *Operation Ressearch.* New Delhi, India: Prentice Hall India
3. Gillet, B.E. *Introduction to Business Research.* Tata McGraw Hill

Modes of Evaluation: Class Test/Assignment /Written Examination

Examination Scheme:

Components	ME	A	Q/S	Asn	CT	EE
Weightage (%)	10	5	5	5	5	70

ME- Mid Term Examination; A- Attendance; Q/S- Quiz/Seminar; Asn- Assignment, EE- External Examination, CT- Class test

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	-	1	2	--	--	--	--	--	--	1	1	--	
CO2	-	1	2	--	--	--	--	--	--	1	2	2	
CO3	-	1	--	--	--	--	--	--	--	1	2	2	
CO4	-	1	1	1	--	--	--	--	--	1	3	3	

1: strongly related, 2: moderately related and 3: weakly related

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BUA4107	**DATABASE MANAGEMENT SYSTEMS**	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

In this course the students will learn about the importance and usage of database management systems in the modern day organizations. The students shall grasp sound knowledge of various types of databases that exist, creation of data warehouse and application areas of data mining. Also, the students will be learning SQL, the language of databases.

Course Objectives

The course aims to make the students

1. Understand the basic and advanced concepts in databases and database management systems
2. Analyze the importance of databases in day to day life.
3. Get a hands-on experience on the SQL-the language of databases.

Course Outcomes

On completion of this course, the students will be able to

CO1: Define the basic terminology used in databases.

CO2: Describe the concepts related to databases architecture.

CO3: Apply the knowledge of SQL in creating databases using DBMS software for a business organization.

CO4: Compare and contrast various types of keys used in database creation.

CO5: Review and assess the organization's data and network security aspects.

Modules	Blooms level*	Number of hours
Module I: Introduction to DBMS Definition of DBMS, Concept and Goals of DBMS, Data Independence, DBMS Architecture, Levels, Database Administrator, File System Approach Vs DBMS Approach, Advantages of Using a DBMS, Data Models, Schemas, and Instances, Database Languages, Database Users, Database Abstraction.	L1, L2	6
Module II: Relational Database & ER Model **Relational Database**: Relational System, Codd's Rule, Relational Model, Optimization, Tables and Views **ER Model:** Entity Type, Entity Set, Relationship type, Relationship sets, Constraints: Cardinality Ratio and Participation Constraint, Keys, Mapping, Design of ER diagrams.	L2, L3	7

Module III: Relational Model Objects Domains and Relations, Relations and predicates, Relational Data Integrity; Primary Key, Candidate Key, Foreign Key and their rules, Relational operators, Relational Algebra	L1, L2	7
Module 4: SQL SQL Language, DDL, DML and DCL commands. Data definition, Data retrieval and update operations on MS ACCESS and SQL Server DBMS.	L1, L2	8
Module 5: Database Applications and Types Distributed Database, Object Oriented Database, Multimedia Database, Data Mining, Digital Libraries. Data Warehouse.	L1, L2	8

**Bloom's Level:*
L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation

Text Books

1. Elmasari, Navathe, "Fundamentals of Database Systems", Addision Wesley.
2. Korth, Silbertz, Sudarshan, "Database Concepts". McGraw Hill.

Reference Books

1. Majumdar & Bhattacharya, "Database Management System", Tata McGraw Hill.
2. Date C J." An Introduction to Database Systems", Addision Wesley.

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	CPA	TP	Q/S	A	ME	EE
Weightage (%)	5	5	5	5	10	70

ME- Mid Term Examination; A- Attendance; Q/S- Quiz/Seminar; Asn- Assignment, EE-External Examination

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1			-				-	-		1		
CO2	1			-				-	-		1		
CO3	2			-				-	1		1		
CO4	-			-				1	2		1		
CO5	-			1				2	-		1		

1: strongly related, 2: moderately related and 3: weakly related

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BUA4108	**HUMAN RESOURCE MANAGEMENT**	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description: The course provides insight into managing Human Resources, Recruitment, Selection, Performance Appraisal, Training & Development and Compensation.

Course Objective:
The objective of this course is to help the students develop an understanding of the dimensions of the management of human resources, with particular reference to HRM policies and practices in India.

Course Outcomes:
On completion of the course the students will be able to:
CO1: Explain and apply the concepts of human resources management in the financial sector.
CO2: Demonstrate a basic understanding of different tools and techniques used in forecasting and planning human resource requirements especially in context to the banking industry.
CO3: Interpret the industry regulations of the banking sector that will effect employees and employers and apply them effectively.
CO4: Analyze and solve key issues related to the human elements, both nationally and internationally such as employee acquisition, retention compensation, appraisal, training, career planning and diversity.

Modules	Blooms level*	Number of hours
Module I: Human Resource Management in Perspective Nature and scope of HRM, HRM functions, HRM models, understanding concepts of Personnel Management, Human Resource Development and Strategic Human Resource Management, HR Environment, Changing Role of HR.	L1, L2	7
Module II: Meeting Human Resource Requirements Job Analysis, Job Description, Strategic Human Resource Planning, Recruitment, Selection Process, Methods – Interview, Tests, Placement and Induction	L1, L2	6
Module III: Training & Developing of Employees Training and Development, Understanding of Performance Management Systems, Potential Appraisal, Career Development	L1, L2	8
Module IV: Managing Compensation Job evaluation, Methods of Job Evaluation, Strategic Compensation, Equity Theory, Components of Pay Structure, Designing and	L1,L2	4

Administration of Wage and Salary Structure, Wage Regulations in India		
Module V: Employee Relations Overview of Industrial Relations, Industrial disputes, Collective Bargaining, Workers Participation and Management, Grievance handling	L1, L2	5
Module VI: Emerging Trends in HRM Overview of Human Resource Information System (HRIS), Introduction to HR Audit, IHRM Practices, Cross- Cultural and Diversity Management, Work-life integration, Human Resource Outsourcing	L1, L2	6

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text & References:

1. David A. Decenzo ,Stephen P. Robbins , Susan L. Verhulst,(2015), Human Resource Management ,eleventh edition , Wiley;
2. Prasad. L.M, (2014) Human Resource Management, Third Edition, Sultan Chand & Sons; New Delhi.
3. Chhabra T.N,(2014) Human Resource Management: Concepts and Issues, Edition 2014,Dhanpat Rai & Co
4. Dessler G (2014) A Framework for Human Resource Management, 7 edition (2014), Pearson Education India;
5. Michael Armstrong , Stephen Taylor,(2017), Armstrong's Handbook of Human Resource Management Practice, 14 edition (3 February 2017), Kogan Page;

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	CPA	TP	Q/S	A	ME	EE
Weightage (%)	**5**	**5**	**5**	**5**	**10**	**70**

ME- Mid Term Examination; A- Attendance; Q/S- Quiz/Seminar; Asn- Assignment, EE-External Examination

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	-	-	-	-	-	-	-	1	-	-	-
CO2	2	1	-	-	-	-	-	-	-	1	-	-	-
CO3	2	3	-	-	-	-	-	-	-	2	-	-	-
CO4	1	2	-	-	-	-	-	-	-	1	-	-	-

1: strongly related, 2: moderately related and 3: weakly related

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Syllabus – Second Semester

BUA4201	**FINANCIAL MANAGEMENT**	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course introduces an investigation of the firm's acquisition and financial activities, to include working capital management, capital budgeting, capital structure strategies, and valuation theory. The practical application of financial policy is stressed for decision-making purposes.

Course Objectives

The objective of this course is to

1. Provide the students relevant, systematic, efficient and actual knowledge of financial management that can be applied in practice with making financial decisions and resolving financial problems.
2. Help the students to acquire the basic knowledge by means of combining theoretical cognitions and practical attitudes to enable them to understand the financial problems in business practice.

Course Outcomes

On completion of this course, the students will be able to

CO1: Describe the financial environment within which organisations must operate.

CO2: Critically evaluate the financial objectives of various types of organisations and the respective requirements of stakeholders

CO3: Explain alternative sources of finance and investment opportunities and their suitability in particular circumstances

CO4: Assess the factors affecting investment decisions and opportunities presented to an organisation.

CO5: Select and apply techniques in managing working capital

CO6: Analyse a company's performance and make appropriate recommendations.

Modules	Blooms level*	Number of hours
Module I: Introduction A Framework for Financial Decision-Making- Financial Environment, Changing Role of Finance Managers, Objectives of the firm.	L1,L2	4
Module II: Valuation Concepts Time Value of Money, Risk and Return, Financial and Operating	L1, L2 ,L3	4

Leverage.		
Module III: Financing Decisions Capital Structure and Cost of Capital, Marginal Cost of Capital.	L1, L2,L3	7
Module IV: Capital Budgeting Estimation of Cash Flows, Criteria for Capital Budgeting Decisions, Issues Involved in Capital Budgeting, Risk analysis in Capital Budgeting – An Introduction.	L1,L2,L3	10
Module V: Working Capital Management Factors Influencing Working Capital Policy, Operating Cycle Analysis, Management of Inventory, Management of Receivables, Management of Cash and Marketable Securities, Financing of Working Capital.	L1,L2,L3	5
Module VI: Dividend Policy Decisions An introduction: Different Schools of Thought on Dividend Policy.	L1,L2,L3	6

**Bloom's Level: L1-Knowledge;L2-Comprehension;L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books

1. Pandey, I.M. (2016), Financial Management, 11th Edition,Vikas Publishing House.
2. Chandra, P. (2017), Financial Management: Theory and Practice, 9th Edition,Tata McGraw Hill
3. Rustagi, R.P,Financial Management: Theory, Concepts and Problems, Galgotia Publishing Company.

Reference Books

1. Damodaran, A.(2007), Corporate Finance: Theory and Practice, Wiley & Sons.
2. Van Horne, J.C. (2011), Financial Management and Policy, Prentice Hall of India.

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	CPA	TP	Q/S	A	ME	EE
Weightage (%)	5	5	5	5	10	70

ME- Mid Term Examination; A- Attendance; Q/S- Quiz/Seminar; Asn- Assignment, EE-External Examination

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	--	--	--	--	--	--	--	1	2	--	--
CO2	1	1	--	--	--	2	2	--	--	1	--	--	--
CO3	1	1	--	--	--	--	1	--	--	1	2	--	--
CO4	1	1	--	--	--	--	2	--	--	1	2	--	--
CO5	1	1	--	--	--	--	--	--	2	1	2	--	--
CO6	1	1	--	--	--	--	--	2	--	1	--	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4202	**OPERATIONS AND SUPPLY CHAIN MANAGEMENT**	L	T	P	C
Version 1	Latest approved	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

Operations and supply chain management deals with the design and operation of the systems for production of goods and services. It will explore the approaches and analyze strategic decisions in operations management with a focus on designing products and processes, allocating scarce resources to strategic alternatives, and do long-range capacity and facility planning. These operations functions help in achieving the organization's long-range objectives. Subsequent focus will be on medium and short term planning and controlling. Care will be taken to strike a balance between theoretical and practical perspectives in manufacturing and serviceorganizations.

Course Objectives

The main objectives of this course are to:

1. Develop an understanding of how the operations, have strategic importance and can provide a competitive advantage in theworkplace.
2. Understand the relationship between operations and other businessfunctions.
3. Understand techniques of location and facility planning, line balancing, job designing, and capacity-planning in operationsmanagement.
4. Understand the supply chain function starting from Demand Management through InventoryManagement.

Course Outcomes

On completion of this course, the students will be able to

CO1. Define the elements of operations management and various transformation processes to enhance productivity andcompetitiveness

CO2. Classify and apply various facility alternatives and their capacity decisions, develop a balanced line of production & scheduling and sequencing techniques in operation environments

CO3. Illustrate aggregate capacity plans and MPS in operationenvironments

CO4. Analyze suitable supply chain principles and practices in the operations.

CO5. Compare and apply variousinventory control methods

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Modules	Blooms level*	Number of hours
Module I: Introduction Operations in manufacturing and services, responsibility of Operations Manager, Operations strategy and competitiveness, process analysis, manufacturing process and service process selection and design, job design and work measurement	L1, L2, L3	6
Module II: Strategic Decisions Facility location decisions, factors affecting location, location techniques: factor rating method, centroid method, facility layout, process layout, systematic layout planning, product layout, line balancing, fixed position layout, service operations layout, types of capacity, capacity planning: long term and short term, economies of scale	L1, L2, L3	8
Module III: Operating Decisions Aggregate Planning, production planning and control (PPC), benefits of PPC, Master Production Scheduling, Operations scheduling: loading, sequencing, priority rules and techniques, Materials Requirement Planning (MRP), concerns in MRP	L1, L2, L3	8
Module IV: Supply Chain Management Recent issues in SCM: Role of IT in SCM, CRM Vs SCM, structure of supply chain, benchmarking concept, features and implementation, outsourcing decisions, value addition in SCM	L1, L2, L4, L5	8
Module V: Inventory Management Inventory management: Objectives, factors, process, inventory costs, inventory models, inventory control techniques: ABC, VED, EOQ, SED analysis, Just-in-Time (JIT), JIT vs traditional systems of operations, JIT in services	L1, L3, L4, L6	6

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books

1. Production and Operations Management, S.N. Cherry, McGraw Hill Publications, 3/e, 4th reprint 2007
2. Production and Operations Management , Sunil Chopra, Peter Meindle, Prentice Hall of India
3. Supply Chain Management, R.B. Handfield, Prentice Hall of India
4. Supply Chain Management, Ajay Garg, McGraw Hill Publications
5. Introduction to Supply Chain Management, Frederick Shiller& Gerald J Liberman , Tata McGraw Hill edition
6. Operation Research, H..A.Taha, Prentice Hall India
7. Introduction to Operation Research, B.E .Gillet ,Tata McGraw Hill:

Reference Books

1. RichardB.Chase,RaviShankarandF.RobertJacobs(2014);Operations&Supply Chain Management; McGraw-Hill - 2014 (14thEdition).
2. CharyS.N.TheoryandProblemsinProduction&OperationsMgt.;TataMcGraw Hill(14th Edition).
3. Krajewski Lee; Operations Mgt. Process for ValueChains; Prentice Hall (8th Edition)
4. Russell S. Roberta & Taylor, Operations Mgt., Prentice Hall (4thEdition).

Modes of Evaluation: Class Test/Assignment /Written Examination

Examination Scheme:

Components	ME	A	Q/S	Asn	CT	EE
Weightage (%)	10	5	5	5	5	70

ME- Mid Term Examination; A- Attendance; Q/S- Quiz/Seminar; Asn- Assignment, EE- External Examination

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	2	1	2	--	--	--	--	--	--	1	1	3	
CO2	2	1	2	--	--	2	--	2	--	1	--	3	
CO3	--	1	--	1	--	1	--	2	--	1	--	--	
CO4	--	1	1	1	--	--	--	3	--	1	2	--	
CO5	--	1	1	1	--	--	--	--	--	1	2	--	

1: strongly related, 2: moderately related and 3: weakly related

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BUA4203	ECONOMETRICS	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course offers the both fundamental and strategic understanding on identification of business problem and how to approach that problem using econometric techniques. This course facilitates a good learning on the estimation of parameters and forecasting of any indicator/variable related to business/ economy at both micro and macro level. Also, this course covers the quantitative analysis, model building and policy making for any economic/business problem. The course starts with simple and multiple linear regressions, followed by topics of special interest to deal with model specification, endogenous variables, binary choice data, and time series data. The aim of the course is to make the students familiar with statistical techniques and quantitative analysis.

Course Objectives

The objective of this course is to

1. Provide a good understanding on identification of problem, estimation of parameters and interpretation of results.
2. Equip the students with major statistical tools and techniques using various statistical software such as STATA, R, SPSS, Eview, SAS.
3. Explore the mathematical background of these concepts and techniques, and demonstrate their use through practical examples and interactive experiments.
4. Facilitate hands on experience to various real world business problems.

Course Outcomes

On completion of this course, the students will be able to

CO1: Translate data into models to make forecasts and to support decision making in a wide variety of fields, ranging from macroeconomics to finance and marketing.

CO2: Use statistical software or programming languages to combine data sets and estimate econometric models.

CO3: Analyse binary response data, panel and time series data using appropriate statistical models.

CO4: Explain problems imposed by endogeneity and simultaneity bias and how to resolve these problems using appropriate statistical models.

Modules	Blooms level*	Number of hours
MODULE 1: Parametric Tests Nature, meaning and scope of econometrics; Simple and general linear regression model —Assumptions, Estimation (through OLS approach) and properties of estimators; Gauss-Markov theorem; Concepts and derivation of R2 and adjusted R2; Concept and	L1, L2,L3	8

analysis of variance approach and its application in regression analysis.		
MODULE 2: Autocorrelation Nature, test, consequences and remedial steps of problems of auto-correlation	L1, L2,L3,L4	7
MODULE 3: Heteroscedasticity Nature, test, consequences and remedial steps of problems of heteroscedasticity.	L1, L2,L3,L4	7
MODULE 4: Multicollinearity Nature, test, consequences and remedial steps of problems of Multicollinearity.	L1, L2,L3,L4	7
MODULE 5: Non-Parametric Tests Dummy variable technique, Testing structural stability of regression models, Stationarity Tests, Logit, Probit and Tobit models — Applications.	L1, L2, L3,L4	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis; L6-Evaluation*

Text Books

1. Gujarati, D.N. (1995), *Basic Econometrics* (2nd Edition), McGraw Hill, New Delhi.
2. Theil, H. (1981), *Introduction to Econometrics*, Prentice Hall of India, New Delhi.

Reference Books

1. Suresh K. Ghoshe, *Econometrics*, Prentice Hall of India Private Limited, New Delhi (2003)
2. A. Koutsoyiannis, *The theory of Econometrics: An introduction exposition of econometric methods*, Educational low-priced books scheme, McMillan Education (1992)
3. Christopher Dougherty, *Introduction to Econometrics*, Oxford University Press (3rd edition)
4. Amemiya, T. (1985), *Advanced Econometrics*, Harvard University Press, Cambridge, Mass.
5. Baltagi, B.H. (1998), *Econometrics*, Springer, New York.
6. Dongherty, C. (1992), *Introduction to Econometrics*, Oxford University Press, New York.
7. Goldberger, A.S. (1998), *Introductory Econometrics*, Harvard University Press, Cambridge

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

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CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	3	1	2	1	--	--	3	1	1	2	1	--	--
CO2	1	1	3	1	--	--	3	1	2	2	1	--	--
CO3	1	2	2	1	--	--	3	1	1	2	1	--	--
CO4	2	1	3	1	--	--	3	1	2	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4204	**BUSINESS RESEARCH METHODS**	L	T	P	C
Version 1.1	Latest Approved	1	0	2	2
Pre-requisites/Exposure					
Co-requisites					

Catalog Description:
The main objective of the course is to equip the students with the basic understanding of research methodology in changing business scenario. It will also provide them an insight into the application of dynamic analytical tools to face the stormy challenges aimed at fulfilling the purpose of business decision making.

Course Objectives:
The objectives of this course are to ensure that students are able to:

1. Understand the basic framework of research process.
2. Comprehend of various research designs and techniques.
3. Identify various sources of information for literature review and data collection.
4. Understand some basic concepts of research and its methodologies
5. Understand as how to organize and conduct research in a more appropriate manner and write a research report, thesis and a research proposal

Course Outcomes (CO):
On completion of this course, the students will be able to:
CO1: Apply a range of quantitative and / or qualitative research techniques to business and management problems / issues
CO2: Determine and apply research approaches, techniques and strategies in the appropriate manner for managerial decision making
CO3: Demonstrate knowledge and understanding of data analysis and interpretation in relation to the research process
CO4: Develop necessary critical thinking skills in order to evaluate different research approaches utilised in the different industries and be able to critically assess the overall process of designing a research study from its inception to its final report preparation.

Modules	Blooms level*	Number of hours
Module I: Introduction Meaning of research, importance of scientific research in business decision making, types of research, complete research process, research methodology, criterion for good research, Identification of research problem and formulation of hypothesis, research designs, drafting a research proposal	L1, L2	2
Module II: Measurement and Data Collection Primary data, secondary data, design of questionnaire, sampling fundamentals and sample designs, Qualitative and quantitative research, measurement and scaling techniques,	L1, L2,L3,L4, L5	8

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measures of central tendency mean, median, mode; measures of dispersion, data processing		
Module III: Data Analysis I Cross tabulation, univariate analysis, bivariate analysis: Correlation, Karl Pearson's coefficient of correlation, Spearman's coefficient of correlation, hypothesis testing, t-test, Z test, F-test, Chi- square test, Analysis of variance, Non-parametric tests: Sign test, Run test, Krushall-Wallis test	L1, L2,L3,L4,L5	6
Module IV: Data Analysis-II Simple linear regression: coefficient of determination, significance tests, residual analysis, Multivariate techniques: multiple linear regression: Multiple coefficient of determination, interpretation of regression coefficients, heteroscedasticity, multicollinearity, outliers, auto regression, factor analysis, cluster analysis (concept)	L1,L2,L3,L4, L5	4
Module V: Report Writing Pre-Writing Considerations, structure of research report, common problems encountered while preparing the research report, presentation of research report, ethical issues while preparing a research report	L1,L2,L3,L4, L5	4

*Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation

Text Book:

Cooper, R.D., Schindler, S. P. and Sharma, J.K. (2015). Business Research Methods. New Delhi, India: McGraw Hill Education (India) Private Limited

Reference Books:

1. Zikmund, William C (1997). Business Research Methods (5th Ed.). The Dryden Press, Harcourt Brace College Publishers
2. Levin & Rubin (2004), Statistics for Management, 8th Ed, Prentice Hall of India

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	CT	HA	Q/S	A	ME	EE
Weightage (%)	5	5	5	5	10	70

CT: Class Test, HA: Home Assignment, Q/S: Seminar/Viva/Quiz, ME: Mid Term Exam EE: End Semester Examination; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	--	-	--	--	--	-	--	1	3	-	-
CO2	1	1	-	--	--	-	--	-	-	1	2	-	-
CO3	1	2	--	-	--	--	-	--	--	1	3	-	-
CO4	1	1	--	--	3	-	2	--	--	1	3	2	2

1: strongly related, 2: moderately related and 3: weakly related

BUA4205	**ECONOMICS FOR MANAGEMENT**	L	T	P	C
Version 1.1	Latest Approved	2	0	0	2
Pre-requisites/Exposure	Basic knowledge of economic science preferred but not compulsory				
Co-requisites					

Catalog Description

In this course the students are introduced with various concepts of economic science that relates to decision making process in management of business organization. To begin with, introductory concepts of economic theory and their implications on managerial decision process are analyzed. Thereafter concepts related to demand analysis, demand forecasting supply analysis, and equilibrium market conditions are discussed in detail. The next phase deals extensively concepts related to production theory, cost theory and revenue aspects. Third, various concepts related to market structure are discussed in detail. Finally, various macroeconomic concepts, policy perspectives of government and other institutions are explored in detail. The overall aim of this course is to make the students familiar with working knowledge of economic decision process based on rational choice approach in workplace.

Course Objectives:

The objective of this course is to:

1. Equip the students with theoretical concepts of economic science so that they can analyze situations and improve upon their managerial decision making process in workplace.
2. Provide students with extensive exposure about the micro and macro level variables and government policies that influence business operations and strategies of the firm under dynamic business environment in an increasingly globalized and integrated business architecture.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Explain basic concepts of economic analysis, demand and supply dynamics, demand forecasting techniques and their application, and analyze the working of free market mechanism and appreciate how forces of demand and supply reinforce each other for attaining market equilibrium.

CO2: Analyze rationally the dynamics of production and cost aspects in order to make a holistic assessment of the complexities inherent in production system.

CO3: Describe the various forms of market structure and their implications in managerial decision process.

CO4: Discuss holistically the various macroeconomic aspects of business, economic variables affecting business operations, and implications of government policies in shaping the dynamics of business environment.

Modules	Blooms level*	Number of hours
MODULE 1: Introduction to Managerial Economics, Demand Analysis and Demand Forecasting: *Introduction to Managerial Economics:* Meaning and Nature of Managerial Economics, Significance of Managerial Economics, Scope of Managerial Economics. *Demand Analysis:* Meaning of Demand, Determinants of Demand, Individual and Market Demand Functions, Individual and Market Demand Curves, Law of Demand, Exception of Law of Demand. *Elasticity of Demand:*Types of Elasticity of Demand, Significance of Elasticity of Demand. *Demand Forecasting*: Purpose of Demand Forecasting , Steps Involved in Forecasting, Determinants of Demand Forecasting, Methods of Demand Forecasting.	L1, L2	7
MODULE 2: Theory of Supply, Production, Cost and Revenue Analysis: *Supply:* Law of Supply, Determinants of Supply, Shift of Supply and Change in Supply, Elasticity of Supply, Kinds of Elasticity of Supply, Determinants Elasticity of Supply. *Theory of Production:* Meaning of Production, Short –run Analysis of Production, Law of Variable Proportion, the Three Stages of Production, Returns to Scale. *Analysis of Cost*: Cost and Managerial Decision-making, Types of Cost, Cost Function, Relationship between Production and Cost, Short Run Cost Function, Long Run Cost Function, Relation between Short-run and Long-run Cost Curves,.*Economies of Scale.* Break-Even Analysis. Concept of Revenue.	L1, L2	11
MODULE 3:Market Structure and Price Determination *Perfect Competition:* Introduction of Perfect Competition, Characteristics of Perfect Competition, Demand Curve of Firm and Industry, Equilibrium of the Firm in the Short Run and Long Run. Effects of Tax Imposition under Perfect Competition. *Monopoly:* Assumptions, Causes of Monopoly, Demand, Average Revenue and Marginal Revenue of a Monopolistic, Profit Maximization Price Determinants of the Monopolist in Short-run and Long-run. Measures of Monopoly Power. *Monopolistic Competition:* Assumptions, Product Differentiation, Demand Curve, Equilibrium of the Firm in Short-run and Long-run, Selling cost and Monopolistic Competition. *Oligopoly:* Assumptions, Non-collusive Oligopoly and Collusive Oligopoly, Kinked Demand Curve Analysis.	L1, L2, L3	8
MODULE 4: Macroeconomics Analysis *National Income:* An Indicator of Economic Activity, The Parameters that Influence Level of Economic Activity. *Business Cycles:* Characteristics of Business Cycle, Phases of Business Cycle, Ill Effects of Business Cycles, General Measure to Control Business Cycles. *The Role of Government in Market Economy and Strategic Business Implications:* Rationale of Government Intervention, Government Macroeconomic Policy Measures – GST, Demonetization – and their impact on Business; Macro Economic variables and their	L1, L2, L3, L4	10

functional relationship; Economic Functions of Government in a Market Economy, Legal and Social Framework, Restraining Unfair Competition and Increasing Market Power, Reallocation of Resources in the Presence of Externalities, Redistribution of Income, Regulation of Natural Monopoly, Stabilization of Economy; *Macroeconomic Variables affecting Business:*Consumption Function, Saving Function, Investment Multiplier; Transaction, Precautionary, Speculative Demand for Money; Liquidity Preference; Components of Money Supply; Fiscal Policy & Monetary Policy and their implications on business and management; Inflation and Deflation - Demand pull and Cost push inflation; Government policies to control inflation. *International Trade Regime and its implications on Business:* GATT, World Trade Organization, Regional Trade Agreements – EU, NAFTA, ASEAN, SAFTA, MERCUSOR		

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books

1. Thomas, Christopher R., S. Charles Maurice, Sumit Sarkar, Managerial Economics, 9th Edition, Tata McGraw Hills.
2. Samuelson, Paul A., and William Nordhaus, Economics, 19th Edition, McGraw Hills India Pvt. Ltd.
3. Krugman, Paul and Maurice Obstfeld (2008), International Trade Policy, Pearsons.
4. Salvatore, D (2010), Managerial Economics, Oxford University Press

Reference Books

1. Peterson, H.C and Lewis, W.C. (2005), Managerial Economics, Prentice Hall of India
2. Bhattacharya, Govind and Debasis Bhattacharya. (2018), GST and Its Aftermath: Is Consumer Really the King, SAGE Publications.
3. Gupta, G.S. (2006), Managerial Economics, Tata McGraw Hill
4. Mishra, S.K., and V.K. Puri. (2009), Indian Economy, Himalaya Publishing House.

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	15	5	5	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	2	--	--	--	--	--	2	1	1	--	--
CO2	1	1	2	--	--	--	--	2	--	1	1	--	--
CO3	1	1	2	--	--	--	--	--	--	1	1	2	--
CO4	1	1	1	--	--	--	2	2	2	1	1	2	2

1: strongly related, 2: moderately related and 3: weakly related

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BUA4206	**PROGRAMMING FOR ANALYTICS USING R**	L	T	P	C
Version 1.1	Date of Approval: Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course offers the specialization on R (powerful language used widely for data analysis and statistical computing). This course facilitates a good understanding on the process of data manipulation and visualization. The course provides ample working examples on statistical data analysis using R.

Course Objectives

The objective of this course is to:

1. Provide learning on how to program in R, how to use R for effective data analysis, how to install and configure software necessary for a statistical programming environment.
2. Provide applications on statistical computing which includes programming in R, reading data into R, accessing R packages, writing R functions, debugging, profiling R code, and organizing and commenting R code.
3. Facilitate hands on experience to various real world business problems using R.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Analyze different datasets using R

CO2: Explore real time data at various levels using appropriate visualizations

CO3: Apply critical programming language concepts such as data types, iteration, control structures, functions, and boolean operators by writing R programs and through examples

Modules	Blooms level*	Number of hours
MODULE 1: Introduction: Introducing to R , R Data Structures , Help functions in R , Vectors , Scalars , Declarations , recycling , Common Vector operations , Using all and any, Vectorized operations , NA and NULL values , Filtering , Vectorized if-then else , Vector Equality , Vector Element names	L1, L2,L3	8
MODULE 2: Matrices, Arrays And Lists: Creating matrices , Matrix operations , Applying Functions to Matrix Rows and Columns , Adding and deleting rows and columns , Vector/Matrix Distinction , Avoiding Dimension Reduction , Higher Dimensional arrays , lists , Creating lists , General list operations , Accessing list components and values , applying functions to lists , recursive lists	L1, L2,L3	7
MODULE 3: Data Frames: Creating Data Frames , Matrix-like operations in frames , Merging Data Frames , Applying functions to	L1, L2,L3	7

Data frames , Factors and Tables , factors and levels , Common functions used with factors , Working with tables - Other factors and table related functions - Control statements , Arithmetic and Boolean operators and values , Default values for arguments - Returning Boolean values , functions are objects , Environment and Scope issues , Writing Upstairs - Recursion , Replacement functions , Tools for composing function code , Math and Simulations in R		
MODULE 4: OOP: S3 Classes , S4 Classes , Managing your objects , Input/ Output , accessing keyboard and monitor , reading and writing files , accessing the internet , String Manipulation , Graphics , Creating Graphs , Customizing Graphs , Saving graphs to files , Creating three-dimensional plots	L1, L2,L3	7
MODULE 5: Interfacing: Interfacing R to other languages , Parallel R , Basic Statistics , Linear Model , Generalized Linear models , Non-linear models , Time Series and Auto-correlation , Clustering	L1, L2, L3	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis;L6-Evaluation*

Text and Reference Books

1. Beginning R – The Statistical Programming Language by Mark Gardener, Wiley, 2013
2. Introductory R: A Beginner's Guide to Data Visualisation, Statistical Analysis and Programming in R
3. ByRobert Knell, Amazon Digital South Asia Services Inc, 2013

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	3	1	2	1	--	--	3	1	1	2	1	--	--
CO2	1	1	3	1	--	--	3	1	2	2	1	--	--
CO3	1	2	2	1	--	--	3	1	1	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4207	**PROGRAMMING FOR ANALYTICS USING PYTHON**	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course is designed in such a way that leads the students from the basics of writing and running Python scripts to more advanced features such as file operations, regular expressions, working with binary data, and using the extensive functionality of Python modules.

Course Objectives

The objective of this course is to:

1. Equip students with the concepts of thefundamental programming concepts including data structures, networked application program interfaces, and databases, using the Python programming language.
2. Provide applications on statistical, machine learning, information visualization, text analysis, and social network analysis techniques through popular python toolkits such as pandas, matplotlib, scikit-learn, nltk, and networkx to gain insights into data analysis process.

Course Outcomes

On completion of this course, the students will be able to

CO1: Create applications for data retrieval and processing

CO2: Conduct an inferential statistical analysis of various business problems

CO3: Explain fundamental Python functionality and features used for data science

CO4: Apply techniques such as lambdas and manipulate csv files

Modules	Blooms level*	Number of hours
MODULE 1: Installing Python; basic syntax, interactive shell, editing, saving, and running a script, Concept of data types; variables, assignments; immutable variables; numerical types; arithmetic operators and expressions; comments in the program; understanding error messages Conditions, boolean logic, logical operators; ranges; Control statements: if-else, loops (for, while); short-circuit (lazy) evaluation	L1, L2,L3	8
MODULE 2: Strings and text files; manipulating files and directories, os and sys modules; text files: reading/writing text and numbers from/to a file; creating and reading a formatted file (csv or tab-separated).String manipulations: subscript operator, indexing, slicing a string; strings and number system: converting strings to numbers and vice versa. Binary, octal, hexadecimal numbers	L1, L2,L3	7
MODULE 3: Lists, tuples, and dictionaries; basic list operators,	L1,	7

replacing, inserting, removing an element; searching and sorting lists; dictionary literals, adding and removing keys, accessing and replacing values; traversing dictionaries. Design with functions: hiding redundancy, complexity; arguments and return values; formal vs actual arguments, named arguments, Program structure and design, Recursive functions	L2,L3	
MODULE 4: Simple Graphics and Image Processing: "turtle" module; simple 2d drawing - colors, shapes; digital images, image file formats, image processing Simple image manipulations with 'image' module (convert to bw, greyscale, blur, etc).Classes and OOP: classes, objects, attributes and methods; defining classes; design with classes, data modeling; persistent storage of objects OOP, continued: inheritance, polymorphism, operator overloading (_eq_, _str_, etc); abstract classes; exception handling, try block	L1, L2,L3	7
MODULE 5: Graphical user interfaces; event-driven programming paradigm; tkinter module, creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colors layouts, nested frames Multithreading, Networks, and Client/Server Programming; introduction to HTML, interacting with remote HTML server, running html-based queries, downloading pages; CGI programming, programming a simple CGI form. Searching, Sorting, and Complexity Analysis	L1, L2, L3	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis;L6-Evaluation*

Text and Reference Books

1. Core Python Programming by Wesley Chun,Prentice Hall
2. Fundamentals of Python: First Programs By Kenneth Lambert,Course Technology, Cengage Learning
3. Learning Python by David Ascher and Mark Lutz,Oreilly

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	3	1	2	1	--	--	3	1	1	2	1	--	--
CO2	1	1	3	2	--	--	3	1	2	2	1	--	--
CO3	1	2	2	1	--	--	3	1	1	2	1	--	--
CO4	2	1	3	2	--	--	3	1	2	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4208	CONSUMER BEHAVIOR	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure	Basic Marketing concepts				
Co-requisites	NA				

Catalog Description:
The increasing trend of customer centric organizations makes it imperative to understand the psyche of consumer to the fullest. Virtually all companies are striving to gain maximum knowledge about the way consumer thinks and behave so that proper direction can be given to the marketing strategy. This paper on consumer behaviour aims to familiarize students about the importance of understanding consumers for the success of an organization. It makes a connection between customer behaviour principles and the elements of marketing strategy.

Course Objectives:
The objectives of this course are to:
1: Make the student understand the concepts/theories pertaining to consumer behaviour and reveal its importance in the context of marketing.
2: Make the student well versed with the various factors that influence consumer behaviour.
3: Enable the student to examine the consumer decision-making process.
4: Provide with knowledge to the student so that he may describe the target market and determine the positioning strategy according to consumer characteristics and behaviour.

Course Outcomes (CO):
On completion of this course, the students will be able to:
CO1: Memorize the various concepts and discuss the rationale for studying consumer behaviour.
CO2: Identify and explain factors which influence consumer behaviour inclusive of society and culture.
CO3: Demonstrate how knowledge of consumer behaviour can be applied to marketing.
CO4: Employ communication skills both orally and in writing within marketing contexts.

Modules	Blooms level*	Number of hours
Module I Consumer Behavior: Understandings and Applications, Consumer Research	L1, L2	5
Module II Consumer as an Individual: Consumer Motivation, Consumer Personality, Consumer Perception, Consumer Learning, Consumer Attitude formation and change.	L1, L2,L3,L4	13

Module III Consumers in their Social Setting: Reference Groups and Family Influences, Social Class and Consumer Behavior, Influence of Culture and Sub Cultures on Consumer Behavior.	L1, L2,L3,L4	13
Module IV Consumer Decision Making Process	L1,L2,L3,L4,L5	3
Module V Opinion Leadership, Diffusions of Innovations and Adoption	L1,L2	2

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books:

1. Schiffman, L.G., Wisenblit,J, J.& Kumar, S.R.(2016). *Consumer Behavior* (11th ed.). Noida, India: Pearson
2. Loudon, D. L. &Bitta, A. J.(2002). *Consumer Behavior*. N. Delhi, India: Tata-McGraw-Hill
3. Gupta, S.L. & Pal, S (2006).*ConsumerBehavior*. N. Delhi, India: Sultan Chand &Sons.

Reference Book:

Blackwell, R.D., Miniard, P.W. &.Engel, J.F.(2007). *Consumer Behavior*.Kundli, India: Thomsons South-Western.

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	CT	HA	Q/S	A	ME	EE
Weightage (%)	5	5	5	5	10	70

CT: Class Test, HA: Home Assignment, Q/S: Seminar/Viva/Quiz, ME: Mid Examination, EE: End Semester Examination; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	-	--	2	--	--	--	--	--	2	1	--	--
CO2	1	-	-	--	--	2	--	--	--	2	1	--	--
CO3	1	-	--	2	--	--	--	--	--	-	1	3	-
CO4	1	-	--	--	--	--	2	--	--	-	1	3	1

1: strongly related, 2: moderately related and 3: weakly related

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BUA4301	**STRATEGIC MANAGEMENT**	L	T	P	C
Version 1.1	Latest Approved	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course introduces the key concepts, tools, and principles of strategy formulation and competitive analysis. It is concerned with managerial decisions and actions that affect the performance and survival of business enterprises. The course is focused on the information, analyses, organizational processes, and skills and business judgment managers must use to devise strategies, position their businesses, define firm boundaries and maximize long-term profits in the face of uncertainty and competition.

Course Objectives

The objective of this course is to

1. Introduce students to the key concepts, tools and principles of business policy and strategic management.
2. Expand the student's capacity to integrate and appreciate the changes in the environment that shape the strategy of a business and lead to developing a competitive edge.
3. Develop the perspective of students towards understanding the culmination of different functional areas into building up of a corporate strategy.
4. Expose the students to the various approaches in crafting business strategy, tools that aid in reasoning carefully about strategic options, and learning how companies use what-if analysis to evaluate action alternatives and make sound strategic decisions.

Course Outcomes

On completion of this course, the students will be able to

CO1: Identify and recognise the various levels at which strategic decision making happens in an organization.

CO2: Analyse the internal and external environment of businessthat will lead to formulation of strategic plans.

CO3: Analyze the suitability of strategies that firms have developed in the real world scenario to achieve valueable outcomes.

CO4: Prepare strategic analysis and choice in order to determine alternative courses of action that could best enable the firm to achieve its mission and objectives.

CO5: Analysis of strategy implementation and evaluation to gain competitive advantage.

Modules	Blooms level*	Number of hours
Module I: Introduction and Purpose of Strategy Formulation Evolution and Introduction of strategic management, Concept of Strategy, corporate, Business and Functional Levels of Strategy,	L1,L2	7

Mission, Vision, Objectives, Approaches to four Phases in Strategic Management Process, Stakeholders in business and their roles in strategic management, Strategic decision making.		
Module II: Environmental Analysis Analysing company's External Environment: PESTLE Analysis; Preparing an Environmental Threat and Opportunity Profile (ETOP), Analysing Industry Environment: Industry Analysis – Porter's Five Forces Model of competition, Strategic Group analysis.	L1, L2 ,L3	7
Module III: Analysis of Organizational Competencies Analysing Company's Internal Environment Resource based view of a firm, meaning, types & sources of competitive advantage, analysing company's Resources and Competitive Position, VRIO Framework; Benchmarking as a method of comparative analysis, Competitive advantage; Concept of a Core competence and Distinctive competitiveness, Characteristics of Core Competencies; Value Chain Analysis Using Porter's Model; Organizational Capability Profile: Strategic Advantage Profile.s	L1, L2,L3	7
Module IV: Strategic Analysis and Choice Generic Competitive Strategies: Meaning of Generic competitive strategies, Low cost, Differentiation, Focus – when to use which strategy; Grand Strategies: Stability, Growth (Diversification Strategies, Vertical Integration Strategies, Mergers, Acquisition & Takeover Strategies, Strategic alliances & Collaborative Partnerships), Retrenchment – Turnaround, Divestment, Liquidation, Outsourcing Strategies; Offensive and Defensive Strategies, Blue Ocean Strategy, Strategy in the age of Internet and E-commerce; Portfolio Analysis Business Portfolio Analysis – BCG Matrix – GE 9 Cell Model; Evaluation of Strategic Alternatives: SWOT Analysis, Grand Strategy Selection Matrix.	L1,L2,L3	8
Module V: Strategy Implementation and Evaluation Strategy Implementation, Barriers to implementation of strategy, Mc Kinsey's 7s Framework; Organization Structures for Strategy Implementation, Leadership Implementation, Functional Implementation, Strategic evaluation review and control.	L1, L2	7

**Bloom's Level: L1-Knowledge;L2-Comprehension;L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books

1. Kazmi, A. (2015), Business Policy and Strategic Management 4th edition), Tata Mc Graw Hill.
2. Wheelen and Hunger, (2018), Strategic Management and Business Policy: Globalisation, Innovation and Sustainability, Pearson Education.

Reference Books

1. Pearce and Robinson (2017),Strategic Management :Formulation, Implementation and Control, Tata McGraw Hill.
2. David Fred R.(2018)Strategic Management Concepts: A Competitive Advantage Approach, Pearson Education.

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	CPA	TP	Q/S	A	ME	EE
Weightage (%)	5	5	5	5	10	70

CT: Class Test, HA: Home Assignment, Q/S: Seminar/Viva/Quiz, ME: Mid Examination, EE: End Semester Examination; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	--	2	--	--	--	--	--	1	--	--	--
CO2	1	1	--	--	--	2	2	--	--	1	2	--	--
CO3	1	1	--	2	--	--	1	--	--	1	--	--	--
CO4	1	1	--	--	--	--	2	--	--	1	--	--	--
CO5	1	1	--	--	--	--	2	--	--	1	--	--	--

1: strongly related, 2: moderately related and 3: weakly related

BUA4302	**DATA MINING**	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

Every business organization is realizing the importance of data. They are harnessing the benefits offered by Data Mining as it allows them to see hidden patterns from the data and helps in framing business policies. This course emphasizes on utilizing the techniques offered by Data Mining.

Course Objectives

This course enable students to:

1. Understand the basic concepts, principles, methods, implementation techniques, and applications of data mining, with a focus on major data mining functions such as cluster analysis.
2. Develops skills to use data mining software and other data mining techniques to solve business problems.

Course Outcomes

On completion of this course, the students will be able to

CO1: Evaluate and implement a wide range of emerging and new technologies to facilitate the knowledge discovery.

CO2: Assess raw input data, and process it to provide suitable input for a range of data mining algorithms.

CO3: Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining

CO4: Discover and measure interesting patterns from different kind of databases.

CO5: Determine data mining functionalities.

CO6: Identify appropriate data mining algorithms, and apply and interpret and report the output appropriately.

CO7: Describe complex data types with respect to spatial and web mining

CO8: Analyze data using the powerful data mining tool Weka.

Modules	Blooms level*	Number of hours
Module I: Introduction to Data Mining What is data mining? Related technologies - Machine Learning, DBMS, OLAP, Statistics, Data Mining Goals, Stages of the Data Mining Process, Data Mining Techniques, Knowledge Representation Methods, Applications, Example: weather data, Data Warehouse and DBMS, Multidimensional data model, OLAP operations, Example: loan data set. Data cleaning, Data transformation, Data reduction, Discretization and generating	L1, L2	6

concept hierarchies, Installing Weka 3 Data Mining System, Experiments with Weka - filters, discretization		
Module II: Data mining knowledge representation and Attribute oriented Analysis **Data mining knowledge representation** Task relevant data, Background knowledge, Interestingness measures, Representing input data and output knowledge, Visualization techniques, Experiments with Weka – visualization. **Attribute oriented Analysis:** Attribute generalization, Attribute relevance, Class comparison, Statistical measures, Experiments with Weka - using filters and statistics.	L2, L3	7
Module III: Data mining algorithms **Association rules:** Motivation and terminology, Example: mining weather data , Basic idea: item sets, Generating item sets and rules efficiently, Correlation analysis, Experiments with Weka - mining association rules **Classification:** Basic learning/mining tasks, Inferring rudimentary rules: 1R algorithm, Decision trees, Covering rules, Experiments with Weka - decision trees, rules **Prediction:** The prediction task, Statistical (Bayesian) classification, Bayesian networks, Instance-based methods (nearest neighbor), Linear models, Experiments with Weka - Prediction	L1, L2, L3	7
Module IV: Cluster Analysis: Concepts and Methods Basic issues in clustering, First conceptual clustering system: Cluster/2, Partitioning methods: k-means, expectation maximization (EM), Hierarchical methods: distance-based agglomerative and divisible clustering, Density Based, Grid based Methods, Conceptual clustering: Cobweb, Experiments with Weka - k-means, EM, Cobweb	L1, L2, L3	8
Module V: Advanced techniques- Data Mining software and applications Text mining: extracting attributes (keywords), structural approaches (parsing, soft parsing), Bayesian approach to classifying text, Web mining: classifying web pages, extracting knowledge from the web, Data Mining software and applications	L1, L2, L3	8

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text & References:

1. Han, J., Kamber, M., & Pei, J. (2011). Data mining: Concepts and techniques (3rd ed.). Waltham: Morgan Kaufmann.
2. Alex Berson, Data Warehousing, Data Mining, and Olap, Tata McGraw Hill.
3. George M Marakas, Modern Data Warehousing, Mining & Visualization Core Concepts, Pearson Education.
4. (Berry, Michael)Data Mining Techniques.
5. (Sharma, Gajendra)Data Mining, Data Warehousing and OLAP.
6. (Gupta, GK) Data Mining with Case Studies.
7. (Han &Kamber)Data Mining: Concepts and Techniques.
8. (PaulrajPonniah) Datawarehousing Fundamentals

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1							1			1		
CO2	1							1			1		
CO3	2							1	1		1		
CO4	1							1	2		1		
CO5	1			1				2			1		
CO6	1										1		
CO7	1										1		
CO8	1										1		

1: strongly related, 2: moderately related and 3: weakly related

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BUA4303	**PREDICTIVE ANALYTICS-I MACHINE LEARNING USING R**	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course offers fundamental and applied evidence based knowledge to improve professional practice of students. It provides a detailed understanding of both supervised and unsupervised learning as it is vital for a data scientist. This course offer insight on text mining using "tidytext."

Course Objectives

The objective of this course is to:

1. Facilitate an introduction to machine learning techniques using several popular algorithms.
2. Internalize a core set of practical and effective machine learning methods and concepts, and apply them to solve some real world problems.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Explain and apply a set of unsupervised learning concepts and methods, classification methods of increasing complexity (rules, trees, random forests), and associated optimization methods (gradient descent and variants)

CO2: Explain the common idioms of large-scale graph analytics, including structural query, traversals and recursive queries, PageRank, and community detection

CO3: Apply the popular algorithms of machine learning using R

CO4: Analyze and interpret the results using specific statistical tools and techniques in R.

Modules	Blooms level*	Number of hours
MODULE 1: Linear Methods for Regression and Classification: Overview of supervised learning, Linear regression models and least squares, Multiple regression, Multiple outputs, Subset selection, Ridge regression, Lasso regression , Linear Discriminant Analysis , Logistic regression, Perception learning algorithm	L1, L2,L3,L4	8
MODULE 2: Model Assessment and Selection: Bias, Variance, and model complexity, Bias-variance trade off, Optimism of the training error rate, Estimate of In-sample prediction error, Effective number of parameters, Bayesian approach and BIC, Cross- validation, Boot strap methods, conditional or expected test error	L1, L2,L3,L4	7
MODULE 3: Additive Models, Trees and Boosting: Generalized additive models, Regression and classification trees, Boosting methods-exponential loss and AdaBoost, Numerical Optimization via gradient boosting	L1, L2,L3,L4	7

MODULE 4: Neural Networks (NN), Support Vector Machines (SVM), and K-nearest Neighbor: Fitting neural networks, Back propagation, Issues in training NN, SVM for classification, Reproducing Kernels, SVM for regression, K-nearest –Neighbour classifiers (Image Scene Classification)	L1, L2,L3,L4	7
MODULE 5: Implementation of following methods using R Simple and multiple linear regression, Logistic regression, Linear discriminant analysis, Ridge regression, Cross-validation and boot strap, Fitting classification and regression trees, K-nearest neighbours, Principal component analysis, K-means clustering	L1, L2, L3,L4	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis; L6-Evaluation*

Text and Reference Books

1. Trevor Hastie, Robert Tibshirani, Jerome Friedman , *The Elements of Statistical Learning-Data Mining, Inference, and Prediction* ,Second Edition , Springer Verlag, 2009.
2. G.James, D.Witten,T.Hastie,R.Tibshirani-*An introduction to statistical learning with applications in R*,Springer,2013.
3. E.Alpaydin, *Introduction to Machine Learning*, Prentice Hall Of India, 2010

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	2	--	3	--	--	--	--	2	1	3	1	--	--
CO2	3	2	1	2	--	2	1	--	1	2	1	3	--
CO3	2	1	1	2	--	--	1	3	1	2	1	3	--
CO4	3	1	2	1	--	--	1	--	1	2	1	3	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4304	**PREDICTIVE ANALYTICS-II MACHINE LEARNING USING PYTHON**	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course offers the specialization of Python staring with data strategy. This course covers the two core paradigms that account for most business applications of predictive modeling: classification and prediction. It also covers the use of partitioning to divide the data into training data (data used to build a model), validation data (data used to assess the performance of different models, or, in some cases, to fine tune the model) and test data (data used to predict the performance of the final model).

Course Objectives

The objective of this course is to:

1. Facilitates a good learning to students on how to make meaningful predictions for a wide range of business purposes.
2. Provide provides a sufficient understanding on development of statistical models and how to devise data-driven workflows.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Apply data science techniques to extract insights from a wide range of data sources and to provide an assessment basis for predictive models. Also, students shall be able to explain how ensemble models improve predictions

CO2: Visualize and explore data to better understand relationships among variables

CO3: Identify and implement appropriate performance measures for predictive models with popular algorithms

Modules	Blooms level*	Number of hours
MODULE 1: Data Cleaning: Reading the data – variations and examples, Data frames, Delimiters, Various methods of importing data in Python: csv method, open method in Pyton, reading data form a URL, reading .xlsor .xlsx files, Reading from an .xls or .xlsx file, Writing to a CSV or Excel file. Handling missing values, Creating dummy variables, Visualizing a dataset by basic plotting, Scatter plots, Histograms, Boxplots	L1, L2,L3,L4	8
MODULE 2: Data Wrangling: Subsetting a dataset, Selecting columns, Selecting rows, Selecting a combination of rows and columns, Creating new columns, Generating random numbers and their usage, Seeding a random number, Generating random numbers following probability distributions, Probability density	L1, L2,L3	7

function, Cumulative density function, Uniform distribution, Normal distribution, Using the Monte-Carlo simulation to find the value of pi, Geometry and mathematics behind the calculation of pi, Generating a dummy data frame, Grouping the data: aggregation, filtering, and transformation		
MODULE 3: Statistical Concepts for Predictive Modelling, Random sampling and the central limit theorem, Hypothesis testing, Null versus alternate hypothesis, Linear Regression with Python: Understanding the math behind linear regression, Linear regression using simulated data, Fitting a linear regression model and checking its efficacy, Finding the optimum value of variable coefficients ,Making sense of result parameters, p-values, F-statistics, Residual Standard Error, Implementing linear regression with Python, Linear regression using the stats model library, Multiple linear regression, Multi-collinearity, Variance Inflation Factor, Model validation, Training and testing data split , Handling categorical variables, Transforming a variable to fit non-linear relations	L1, L2,L3,L4	7
MODULE 4: Logistic Regression with Python, Linear regression versus logistic regression, Understanding the math behind logistic regression, Contingency tables, Conditional probability, Odds ratio, Moving on to logistic regression from linear regression, Estimation using the Maximum Likelihood Method, Likelihood function: Log likelihood function, Building the logistic regression model from scratch, Making sense of logistic regression parameters, Wald test, Likelihood Ratio Test statistic, Chi-square test, Implementing logistic regression with Python, Processing the data, Data exploration, Data visualization, Creating dummy variables for categorical variables, Feature selection, Implementing the model, Model validation and evaluation, Cross validation, Model validation, The ROC curve, Confusion matrix.	L1, L2,L3,L4	7
MODULE 5: Trees and Random Forests with Python: Introducing decision trees, A decision tree Understanding the mathematics behind decision trees, Homogeneity, Entropy, Information gain, ID3 algorithm to create a decision tree, Gini index, Reduction in Variance, Pruning a tree, Handling a continuous numerical variable, Handling a missing value of an attribute, Implementing a decision tree with scikit-learn, Visualizing the tree, Cross-validating and pruning the decision tree, Understanding and implementing regression trees, Regression tree algorithm, Implementing a regression tree using Python, Understanding and implementing random forests, The random forest algorithm, Implementing a random forest using Python, Why do random forests work?, Important parameters for random forests	L1, L2, L3,L4	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis;L6-Evaluation*

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Text and Reference Books

1. A. I. Khuri. Introduction to linear regression analysis, by Douglas C. Montgomery, Elizabeth A. Peck, G. Geoffrey Vining. International Statistical Review, 81(2):318–319, 2013.
2. A. Toescher, M. Jahrer, and R. M. Bell. The bigchaos solution to the netflix grand prize. Netflix prize documentation, 2009.
3. C. J. Burges. A tutorial on support vector machines for pattern recognition. Data mining and knowledge discovery, 2(2):121–167, 1998.
4. D. H. Wolpert and W. G. Macready. No free lunch theorems for optimization. Evolutionary Computation, IEEE Transactions on, 1(1):67–82, 1997.
5. D. H. Wolpert. Stacked generalization. Neural networks, 5(2):241–259, 1992.

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	2	1	--	2	--	2	1	--	1	2	1	--	--
CO2	2	1	--	2	--	2	1	--	1	--	1	--	--
CO3	2	1	--	2	--	2	1	--	1	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4305	**BIG DATA ANALYTICS- HADOOP**	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course familiarizes the students on how to perform analytical operations on structured and unstructured data to gain insights from data processed through Hadoop. This offers a specialization on Big Data Platform and its use cases providing an overview of Apache Hadoop.

Course Objectives

The objective of this course is to:

1. Equip students with the concepts of how to use Pig, Hive, and Impala to practice and examine tremendous datasets stored in the HDFS, and use Sqoop and Flume for data ingestion.
2. Provide applications on components of Hadoop and Hadoop Eco-System such as Hadoop Cluster Architecture, Important Configuration files in a Hadoop Cluster, Data Loading Techniques, how to setup single node Hadoop clusterl installation of VM player and Hadoop, Important Configuration files in a Hadoop Cluster, Linux commands, Importing Hadoop Jars, Data Loading Techniques

Course Outcomes

On completion of this course, the students will be able to:

CO1: Identify Big Data and its Business Implications
CO2: Access and Process Data on Distributed File System
CO3: Manage Job Execution in Hadoop Environment
CO4: Develop Big Data Solutions using Hadoop Eco System

Modules	Blooms level*	Number of hours
MODULE 1: Introduction to Big Data Definition of Big Data, The 5 V's of Big Data(Volume, Variety, Velocity, Veracity, Value), Comparison of Traditional Data with Big Data, Management of Big Data, Analyzing Big Data, and Technology Challenges for Big Data. Big Data Sources, Big Data Applications, Big Data Architecture	L1, L2,L3	8
MODULE 2: Technologies for Handling Big Data Introduction to Traditional RDBMS, OLTP, OLAP, Data Mining, Data Warehouse, Basic SQL Commands and queries: CREATE, INSERT, DELETE, UPDATE, SELECT Cloud Computing : Definition, Characteristics, Applications, Deployment Model, Service Models	L1, L2,L3	7
MODULE 3:Distributed Computing Using Hadoop	L1,	7

Introduction, Hadoop Framework, Hadoop Distributed File System, Map Reduce, Hive, Pig Sample Map Reduce Application, HIVE language capabilities, Pig Language capabilities, HIVE query examples, Pig Scripts examples	L2,L3	
MODULE 4: Big Data in Business Case Studies: Big Data in Marketing, Retail Hospitality, Customer Services, Decision Support using Big Data. Developing a Big Data Strategy/ Defining a Big Data strategy for your organization, Big Data Platform for Internet of Things	L1, L2,L3	7
MODULE 5:Visualization and Analytics Visualizations - Visual Data Analysis Techniques - Interaction Techniques; Systems and Analytics Applications - Analytics using Statistical packages-Approaches to modeling in Analytics – correlation, regression, decision trees, classification, association-Intelligence from unstructured information	L1, L2, L3	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis;L6-Evaluation*

Text and Reference Books

1. Michael Berthold, David J. Hand, "Intelligent Data Analysis", Springer, 2007
2. Anand Rajaraman and Jeffrey David Ullman, "Mining of Massive Datasets", Cambridge University Press, 2012
3. Bill Franks, "Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics", John Wiley & sons, 2012
4. Glenn J. Myatt, "Making Sense of Data", John Wiley & Sons, 2007
5. Pete Warden, "Big Data Glossary", O'Reilly, 2011
6. Jiawei Han, MichelineKamber "Data Mining Concepts and Techniques", Second Edition, Elsevier, Reprinted 2008.

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	3	1	2	1	--	--	3	1	1	2	1	--	--
CO2	1	1	3	2	--	--	3	1	2	2	1	--	--
CO3	1	2	2	1	--	--	3	1	1	2	1	--	--
CO4	2	1	3	2	--	--	3	1	2	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4306	FINANCIAL DECISION ANALYSIS	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

Financial decision making involves analyzing the financial problems that the company faces and deciding which course of action should be taken. In order to make financial decisions, you must be able to identify potential financial problems and analyze the effects of alternative courses of action.

Course Objectives

This course provides a specialization on financial tools to apply to decision-making within organizations. The course helps the student to

1. Develop a range of financial analysis skills through a combination of class discussions and analyses of case studies of specific organizations.
2. Demonstrates the complex relationships between finance, impact, strategy, and governance in business organizations.

Course Outcomes

By the end of the course the participants should be better able to:

CO1: Explain how organisations make value optimising financial decisions, and reflectively and critically assess the ethical issues arising from these decisions.

CO2: Critically analyse and evaluate various financial models and decision making techniques and their impact on different constituencies of stakeholder. Apply financial analysis skills in the facilitation of strategic decision making.

CO3: Review Assess the features of alternative and diverse sources of finance and critically evaluate their appropriateness under different circumstances and evaluate elements of risk, return and value in a range of strategic operational financial decisions and understand the implications in regulatory and governance terms of the consequences of doing so.

Modules	Blooms level*	Number of hours
Module I : Financial governance: objectives and environment The role of shareholder wealth maximisation in modern financial management, Shareholder v stakeholder perspectives, Role of the finance , function Balancing risk and return, Shareholder wealth maximisation and ethical behaviour Ethics and the finance function, Corporate Governance : Corporate Governance and the agency problem, Financial aspects of the Indian Corporate Governance Code New public management, Listing requirements in the Stock Exchanges.	L1,L2, L3	5

Module II: Management performance measurement Financial ratio analysis – Profitability – Efficiency – Liquidity - Investment performance. Operating, Financial and Combined Leverage. Financial distress and insolvency, including the use of financial ratios based on univariate and multivariate analysis to predict financial failure. Analysis of Risk and Uncertainty in Capital Budgeting, Description and Measurement of Risk; and Risk Evaluation Approaches. Risk and Return - Conceptual Framework of Risk and Return: Type of Risks; Risk and Return of a Single Asset; Risk and Return of Portfolio (only two asset portfolio); Portfolio Selection; and Capital Asset Pricing Model (CAPM)	L1, L2, L3	6
Module III:-Making distributions to shareholders Dividend policy and shareholder wealth – Traditional v Modigliani and Miller arguments Reasons for the importance of dividends, Factors determining the level of dividends Scrip dividends, Special dividends and share buybacks, Tax Aspects associated with Dividend Decision	L1, L3	6
Module IV: - Long term investment decisions The nature of investment decisions - Investment appraisal methods - Payback period (including discounted payback period) - Accounting rate of return - Net present value - Internal rate of return – MIRR – XIRR- CAGR, Investment opportunities and risk - Risk and Return preferences of investors. Risk appraisal methods – Sensitivity analysis – Scenario analysis –Simulations - Expected net present value - Risk-adjusted discount rate. **Shareholder value analysis:** Shareholder value and the need for new forms of measurement-Shareholder value analysis and net present value -Comparison of shareholder value analysis and Economic value added -Total shareholder return (TSR) and market value added (MVA) , Cash Value added, Market to Book Value , Evaluation of the shareholder value approach. **Analysis of securities**: Cost method and market method. Equity method of accounting and analysis of minority interest.	L1, L3,L4	7
Module V: Business combinations and share valuation **Business Valuation**: Conceptual Framework of Valuation; Approaches/Methods of Valuation; and other Approaches to Value Measurement, **Corporate Restructuring**: Conceptual Framework; Financial Framework; Tax Aspect of Amalgamation; Merger and Demergers; Legal and Procedural Aspects of Mergers/Amalgamations and Acquisition/Takeovers; and other forms of Corporate Restructuring. Economic rationale for mergers and acquisitions, forms of purchase consideration with DCF model. **Option Valuation**: Concept and Types of Options; Option Payoffs; Call Option Boundaries; Factors Influencing Option Valuation; and The Black-Scholes Option Pricing Model. **Valuation and forecasting** - Valuation models: Asset based models, DCF models and abnormal earnings or Edwards-Bells-Ohlson model. Forecasting models: Extrapolative models and index models, Forecasting with disintegrated data,	L1, L3,L4	5

Comparison with financial analysts' forecast.		
Module VI: Capital markets and long-term financing decisions Financial markets and institutions-The role of the Stock Exchange Advantages and disadvantages of a Stock Exchange listing Stock market efficiency – Long term sources of financing – Shares– Debts - Debentures – Personal financing -		7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text and Reference Books:

1. Khan, M.Y & Jain, P.K.: Financial Management; Tata McGraw Hill, New Delhi, 2015.
2. Pandey, I. M.: Financial Management; Vikas Publishing House, New Delhi, 2015.
3. Chandra, Prasana: Financial Management; Tata McGraw Hill, New Delhi, 2008.
4. Brealey and Meyers: Principles of Corporate Finance: Tata McGraw Hill, New Delhi, 2008.
5. Keown, Martin, Petty and Scott (Jr): Financial Management: Principles and Applications; Prentice Hall of India, New Delhi, 2002.
6. Gitman, L.J: Principles of Managerial Finance; Addison Wasley, 2009.
7. Vanhorne, James C: Financial Management and Policy; Prentice Hall of India, New Delhi, 2015.
8. Kishore Ravi, M: Financial Management; Taxman, 2018.
9. Gerald I. White, Ashinpaul C. Sondhi and Dov Fired , "The Analysis and use of Financial Statements", (3rd Ed.), , Wiley-India

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	CT	HA	P	A	EE
Weightage (%)	**10**	**5**	**10**	**5**	**70**

C - Case Discussion/ Presentation; HA - Home Assignment; P - Project; S - Seminar; V - Viva; Q - Quiz; CT - Class Test; A - Attendance; EE - End Semester Examination

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	--	--	--	--	--	--	1	1	1	--	--
CO2	1	1	--	--	--	--	--	--	1	1	1	--	--
CO3	1	1	--	--	--	--	--	--	1	1	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4307	**VISUAL ANALYTICS- TABLUE /POWER BI**	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/ Exposure					
Co-requisites					

Catalog Description

This course familiarizes the students on data visualization tools. This course is designed to provide a fundamental and strategic understanding on the concepts of Business Intelligence using Tablue.

Course Objectives

The objective of this course is to:

1. Equip students with the concepts of BIs and its types and how to connect to and import data, author reports using Power BI Desktop, and publish those reports to the Power BI service
2. Emphasize on how to create dashboards and share with business users—on the web and on mobile devices

Course Outcomes

On completion of this course, the students will be able to:

CO1: Connect, import, shape, and transform data for business intelligence (BI)
CO2: Visualize data, author reports, and schedule automated refresh of your reports
CO3: Create and share dashboards based on reports in Power BI desktop and Excel
CO4: Use natural language queries and create real-time dashboards

Modules	Blooms level*	Number of hours
MODULE 1: Tableau: Introduction, Getting Started with Tableau, Connecting to Data, Data Prep with Excel, Overview of the Tableau User Interface, Working with Discrete vs. Continuous Data, Calculated fields **Power BI**: Understanding key concepts in business intelligence, data analysis, and data visualization, Importing data and automatically creating dashboards from services such as Marketo, Salesforce, and Google Analytics, Connecting to and importing your data, then shaping and transforming that data, Enriching your data with business calculations.	L1, L2,L3	8
MODULE 2: Tableau: Introduction to data visualization, the evolution of the BI industry, Understanding the business value of visual analytics, Data visualization best practices (overview), Power BI: Visualizing your data and authoring reports, Scheduling automated refresh of your reports, Creating dashboards based on reports and natural language queries, Sharing dashboards across	L1, L2,L3	7

your organization, Consuming dashboards in mobile apps		
MODULE 3:Tableau: Basic charts, Design considerations for effective data visualization, Human cognition and visual perception, Using Maps to Visualize Spatial Data, **Power BI:** Leveraging your Excel reports within Power BI, Creating custom visualizations that you can use in dashboards and reports, Collaborating within groups to author reports and dashboards, Sharing dashboards effectively based on your organization's needs.	L1, L2,L3	7
MODULE 4: Tableau: The visual storytelling framework, the business value of visual stories, Creating dashboards and story points, Formatting worksheets and dashboards. **Power BI:** Exploring live connections to data with Power BI, Connecting directly to SQL Azure, HD Spark, and SQL Server Analysis Services, Introduction to Power BI Development API, Leveraging custom visuals in Power BI	L1, L2,L3	7
MODULE 5: Common pitfalls of data visualization, Common pitfalls of data narratives, Share and critique an example of a data visualization, Provide your Tableau Public URL, Share data visualization on Tableau Public, Building a Dashboard in Tableau and Power BI, Develop a data story pitch	L1, L2, L3	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis;L6-Evaluation*

Text and Reference Books

1. Microsoft Business Intelligence Tools for Excel Analysts: Michael Alexander, Jared Decker, Bernard Wehbe, John Wiley & Sons, 2014
2. Introducing Microsoft Power BI: Alberto Ferrari and Marco Russo, Microsoft Press 2016
3. Getting started with Watson Analytics: IBM Corporation 2015
4. Tableau Your Data! Fast and Easy Visual Analysis with Tableau Software: Daniel G. Murray and the InterWorks BI Team, John Wiley & Sons 2013
5. Beginning Big Data with Power BI and Excel 2013: Neil Dunlop, Apress 2015
6. IBM Watson Content Analytics Discovering Actionable Insight from Your Content: Wei-Dong (Jackie)
7. Zhu Bob Foyle, Daniel Gagné, Vijay Gupta, Josemina Magdalen, Amarjeet S Mundi, Tetsuya Nasukawa Mark Paulis, Jane Singer, Martin Triska, ibm.com/redbooks, IBM Corporation July 2014

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

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CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	3	1	2	1	--	--	3	1	1	2	1	--	--
CO2	1	1	3	2	--	--	3	1	2	2	1	--	--
CO3	1	2	2	1	--	--	3	1	1	2	1	--	--
CO4	2	1	3	2	--	--	3	1	2	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4335	SUMMER INTERNSHIP EVALUATION	L	T	P	C
Version 1.1	Latest Approved	0	0	0	6
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

There are certain phases of every Intern's professional development that cannot be effectively taught in the academic environment. These facets can only be learned through direct, on-the-job experience working with successful professionals and experts in the field. The internship programme can best be described as an attempt to institutionalize efforts to bridge the gap between the professional world and the academic institutions. Entire effort in internship is in terms of extending the program of education and evaluation beyond the classroom of a university or institution. The educational process in the internship course seeks out and focuses attention on many latent attributes, which do not surface in the normal class room situations. These attributes are intellectual ability, professional judgment and decision making ability, inter-disciplinary approach, skills for data handling, ability in written and oral presentation, sense of responsibility etc.

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Course Objectives

The objective of this course is to:

1. Offer students the opportunity to apply their knowledge in real-life environments through an industry placement for eight-weeks.
2. Providedesired skills to students that will help them perform better on their jobs after graduation.

Course Outcomes

On completion of Summer Internship,the students will be able to:

CO1: Get hands-on experience about real world problems in a field relevant to their major of studies.

CO2: Acquire confidence for employment after graduation.

CO3: Acquire skills important for time management, discipline, self-learning, effective communication and so on.

CO4: Learn practically about team-work, collaboration, and leadership.

Credit Hours: 6 hours

Course Duration: Six-Eight weeks

Semester Offered: Summer

Format for Report Writing	Blooms level*	Number of hours
1. Title of the project 2. About the organization 3. Introduction and objectives of the project/ programme / organization	L1, L2 ,L3,L4,L5,L6	6hours (Duration-6-8 weeks during

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4. Funding agency—about the agency, how to get funding, Nature of funding agency 5. Staffing pattern of the project with their functions 6. Major activities going under project 7. Results achieved so far (target Vs achievement) 8. Role of the candidate in the project/programme / organization 9. Evaluation by the candidate		summer)

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis; L6-Evaluation*

SIP Guidelines

1.Every student is required to write an Internship report upon completion of their internship and required to submit two copies (student copy + department copy) of the report to concerned department HOD (along with internal marks certificate given by the company) for final evaluation and awarding of end examination marks.

2.Before submitting the report to the HOD, the student required to go through multiple rounds of revision in collaboration with the industry guide and department internship mentor/coordinator/supervisor.

The Internship Report serves multiple purposes:

• Help the student develop written communication skills. • Serve as an archival record of the internship experience. • Give the student an opportunity to reflect on the professional aspects of the internship experience and the skills that were learned. • Allow the student to describe the science content of the internship. • Have the student to reflect on the initial goals of the internship and how they were (or were not) achieved during the internship.

Modes of Evaluation: Presentation/Viva/ Report /Assignment Examination

Examination Scheme:

Components	Content & Layout of Report	Conceptual Framework	Objectives & Methodology	Implications & Conclusions	Presentation
Weightage	30	10	15	15	30

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	--	--	--	--	--	--	1	--	--	--	1	--
CO2		1	--	--	--	--	--	--	--	--	--	1	--
CO3	--	--	1	--	--	1	1	--	--	--	--	1	2
CO4	--	--	--	--	--	--	1	--	--	--	--	1	2

1: strongly related, 2: moderately related and 3: weakly related

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Syllabus – Fourth Semester

BUA4401	**TOTAL QUALITY MANAGEMENT**	L	T	P	C
Version 1.1		2	0	0	2
Pre-requisites/Exposure					
Co-requisites					

Catalog Description: This course teaches the students the methodology and system of tools aimed to create and maintain mechanism of organization's continuous improvement.

Course Objective:
The aim of this course is to:

1. Provide a structured learning framework to students in order that they can understand that total quality management is a philosophy, methodology and system of tools aimed to create and maintain mechanism of organization's continuous improvement.
2. Help the students to understand the main principles of business and social excellence; generate knowledge and skills to use models and quality management methodology for the implementation of total quality management in any sphere of business and public sector.

Course Outcomes:
On completion of the course the students will be able to:
CO1: Evaluate the principles of quality management and to explain how these principles can be applied within quality management systems.
CO2: Identify the key aspects of the quality improvement cycle and to select and use appropriate tools and techniques for controlling, improving and measuring quality.
CO3: Critically appraise the organizational, communication and teamwork requirements for effective quality management.
CO4: Critically analyze the strategic issues in quality management nationally and internationally, including current issues and developments, and use the appropriate statistical techniques to evaluate quality implementation plans.

Modules	Blooms level*	Number of hours
Module I: Introduction Definition of quality, brief history, quality in manufacturing and service industries, quality and price, quality and market share, quality and cost, quality and competitive advantage Evolution of the concept of total quality management, elements of total quality management, benefits of total quality management, the Deming management philosophy, the Juran philosophy, the Crosby philosophy	L1, L2	7
Module II: Organization for Quality Quality objectives, quality policy, leadership for quality, quality and organization culture, cross functional teams, quality circles, suppliers/customers partnership	L1, L2	5

Module III: Quality Control Concept of quality control, quality assurance, concept of process variation, sampling inspection vs. 100% inspection, acceptance sampling by attributes: Operating Characteristics (OC) curves; producer risk: AQL, RQL, TQL, AOQL Statistical Process Control: advantages of SQC, construction of control charts: X-R chart, np chart, C- chart, U chart, Pareto analysis (20/80 rule)	L1, L2	6
Module IV: Benchmarking and Kaizen Benchmarking, rationale of benchmarking, approach and process, prerequisite of benchmarking, obstacles of successful benchmarking, perceptual benchmarking, concept of Kaizen, kaizen vs innovation, Kaizen practice	L1,L2	3
Module V: Quality Management Systems Quality certification, quality management principles, ISO 9001:2000, ISO 14000, Capability Model Maturity Integration (CMMI): Fundamentals and Concepts, quality system audit, types of quality audit	L1, L2	3

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text and Reference Books:

1. Garg, Ajay K. (2012). *Production and Operations Management.* McGraw-Hill, New Delhi
2. Cherry, S.N. (2012). *Production and Operations Management (5th ed.).* McGraw-Hill, New Delhi
3. Crosby, Philip B., Completeness: Quality for 21stCentuary, Dutton, New York, 1992
4. Drummond, Helga, The TQM Movement: What Total Quality Management is All Movement, UBS Publication, New Delhi, 1992
5. Juran, J.M. &Gryna, F.M., Quality Planning and Analysis
6. Lock, Dennis, Handbook of Quality, Jaico Publishing House, Mumbai, 1996
7. Ross, Joel E., TQM: Text, Cases and Readings, St. Lucie Press, New York, 1993

Modes of Evaluation: Presentation/Viva/ Report /Assignment Examination

Examination Scheme:

Components	CPA	TP	Q/S	A	ME	EE
Weightage (%)	5	5	5	5	10	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	-	-	2	-	-	1	2	1	-	-	2
CO2	2	1	-	-	3	-	-	1	1	1	-	-	3
CO3	2	2	-	-	3	-	-	1	2	2	-	-	1
CO4	1	2	-	-	1	-	-	1	1	1	-	-	2

1: strongly related, 2: moderately related and 3: weakly related

BUA4402	**FINANCIAL ANALYTICS**	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

Every business in the industry is generating loads of financial data and they understand the significance of deriving logical inferences out of it to streamline their decision making process. Lately, accurate financial data analysis is not enough for a business to sail through. They need predictive insights which can improve their real time day to day decision making. Financial analytics helps in combining internal and external financial information by using social media and big data to provide predictive insights. Whether it is with respect to stock market prediction or customer profitability, finance analytics enables to provide a direction in predicting all.This course blends easy-to-use statistical tools with complex machine learning tools and algorithms to equip the participants with the requisite skill set in analysing data. By the end of this course, the participants should be able to perform financial analysis using powerful tools like R and Python.

Course Objectives

The objective of this course is to:

1. Make students understand and diagnose the information contained in financial statement with a view to judge the profitability and financial soundness of the firm, and to make forecast about future prospects of the firm.
2. Provide understanding on diverse needs of the traditional financial department, and advancements in technology, all point to the need for financial analytics.
3. Help students to shape up the business' future goals and to improve the decision-making strategies for various business situations.
4. Emphasize on measuring and managing business' tangible assets such as cash and equipment.
5. Provides an in-depth insight into the organization's financial status and improves the cash flow, profitability, and business value.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Understand and interpret the financial data about the company

CO2: Forecast the firm financial position and interpret accordingly

CO3: Evaluate the financial position with the support of various financial tools like financial statement analysis, time value of money, bond valuation and valuation of the firm

CO4: Equip the requisite skill set in analyzing data in terms of finance

Modules	Blooms level*	Number of hours
Module I: Introduction to Financial Analytics and Time Series Data Subjective Forecasting, Business Forecasting and Time Series Data, Introduction to Financial Analytics, Forecasting Performance Measurements: Distance, Forecasting Performance Measurements: Metrics.	L1,L2,L3	7
Module II: Performance Measures and Holt-Winters Model Introduction to Forecasting: Average Method, Naive Method, Linear regression, R example, Moving Averages, Introduction to Exponential Smoothing, Simple Exponential Smoothing, R example on Simple exponential smoothing, Holt's Exponential Smoothing, Holt-Winter's Forecasting Model, Holt-Winter's Model: R Example, Autoregression: Introduction, Autoregression: R Example	L1, L2, L3,L4, L6	8
Module III : Financial Statement Analysis Balance Sheet, Income Statement, Cash Flow Statement, Understanding the Financial Statements and their interlinking, Financial Ratios, Ratio Analysis Present Value (single and multiple cash flows), Future Value (single and multiple cash flows), Annuity, Perpetuity, Growing Annuity. Application: Loan Amortization, Compounding the interest rate	L1, L2, L4, L6	7
Module IV: Modern Portfolio Theory and Introduction to Algorithmic Trading Portfolio Theory: Introduction, Expected Returns, Risk of a Security, Efficient Frontier, Portfolio Weights, Capital Allocation Line, Diversification, Introduction to Algorithmic Trading, Trend Following Strategy, Backtesting, R Example	L1, L2, L3,L4	7
Module V:Linear Regression, Predicting Binary Outcomes (Credit Prediction) Single and Multiple Linear Regression, Modelling and Prediction (Examples using financial data), Logistic Regression, Multiple Logistic Model, Historical Simulation, Simple Variance based approach, Risk Metrics, Monte Carlo Simulation, Value-at-Risk Estimation and Backtesting	L1, L2, L3,L4	7

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books:

Edward E Williams (Author), John A Dobelman , Quantitative Financial Analytics: The Path To Investment Profits, 2017, Publisher: WSPC, ISBN-10: 9813224258I

Reference Books:

1. Thomas Mazzoni , A First Course in Quantitative Finance, 2018, Cambridge University Press (March 22, 2018)ISBN-10: 9781108411431
2. Mark J. Bennett and Dirk L. Hugen, Financial Analytics with R: Building a Laptop Laboratory for Data Science, 2016 by Cambridge University Press

Modes of Evaluation: Presentation/Viva/ Report /Assignment Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	--	--	--	2	--	2	1	2	1	--	--
CO2	1	1	--	--	--	2	--	2	1	2	1	--	--
CO3	1	1	--	--	--	2	--	2	1	2	1	--	--
CO4	1	1	--	--	--	2	--	2	1	2	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4403	SUPPLY CHAIN ANALYTICS	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course provides foundational knowledge associated with the operations analytics. The course offers insights on the various tools and techniques for implementation of analytics based on the supply chain drivers such as location, logistics and inventory.

Course Objectives

The objective of this course is to:

1. Manage uncertainty and risk within supply chain management
2. Segment different customers, products, and channels and design an optimal portfolio of logistics approaches and strategies for these various segments
3. Understand the appropriate forecasting methodology for each segment

Course Outcomes

On completion of this course, the students will be able to:

CO1: Describe the various techniques for analytics based on the Multi Attribute Decision Making (MADM) and risk.
CO2: Identify the inventory techniques for analytics and the different network models.
CO3: Analyze the inventory using aggregate production model.
CO4: Illustrate the transportation problems for analytics in network design.
CO5: Analyze the different dimensions using Analytic Hierarchy Process.

Modules	Blooms level*	Number of hours
Module I: Warehousing Decisions, Mathematical Programming Models, P-Median Methods, Guided LP Approach, Balmer – Wolfe Method, Greedy Drop Heuristics, Dynamic Location Models, Space Determination and Layout Methods.	L1, L2	7
Module II:Inventory Management, Inventory aggregation Models, Dynamic Lot sizing Methods, MultiEchelon Inventory models, Aggregate Inventory system and LIMIT, Transportation Network Models, Notion of Graphs, Minimal Spanning Tree.	L1, L2	8
Module III: Shortest Path Algorithms, Maximal Flow Problems, Multistage Transshipment and Transportation Problems, Set covering and Set Partitioning Problems, Traveling Salesman Algorithms, Advanced Vehicle Routing Problem Heuristics, Scheduling Algorithms-Deficit function Approach and Linking Algorithms.	L1, L2	6

Module IV: Analytic Hierarchy Process, Data Envelopment Analysis, Risk Analysis in Supply Chain, Measuring transit risks, supply risks, delivering risks	L1,L2	5
Module V: Risk pooling strategies, Fuzzy Logic and Techniques-Application in SCM	L1, L2	6

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books:

1. Gerad Feigin, Supply Chain planning and analytics – The right product in the right place at the right time, Business Expert Press, 2011
2. Peter Bolstorff, Robert G. Rosenbaum, Supply Chain Excellence: A Handbook for Dramatic Improvement Using the SCOR Model, AMACOM Div American MgmtAssn, 2007
3. Robert Penn Burrows, Lora Cecere, Gregory P. Hackett, The Market-Driven Supply Chain: A Revolutionary Model for Sales and Operations Planning in the New On Demand Economy, AMACOM Div American Mgmt Assn, 2013.

Reference Books:

1. Hamdy A. Taha, "Operations Research An Introduction", Prentice Hall India. Sixth, Edition
2. Anderson, Sweeney and Williams, "An Introduction to Management Science: Quantitative Approaches to Decision Making", Cengage Learning, Fifth India Edition
3. Barry Render, Ralph M. Stair Jr. "Quantitative Analysis for Management, Rearson Education, Eighth Edition
4. Frederick S. Hillier and Mark S. Hillier, Introduction to Management Science: A Modeling and Case Studies Approach with Spreadsheets, Tata McGrow-Hill Edition, Second Edition

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	1	-	-	-	-	-	-	3	-	1	--	3
CO2	1	1	-	-	-	-	-	-	3	-	1	--	3
CO3	1	1	-	-	-	-	-	-	3	-	1	--	3
CO4	1	1	-	-	-	-	-	-	3	-	1	--	3
CO5	1	2	-	-	-	-	-	-	3	-	1	--	3

1: strongly related, 2: moderately related and 3: weakly related

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BUA4404	HR ANALYTICS	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalogue Description:
Developing the right HR metrics and analytics for your specific context which support long-term performance and improving the decision making is a key competitive edge in the modern economy. HR is increasingly difficult in an era of talent wars, complex environments and a deluge of information.

Course Objective:
The course aims to:
1. Give students a good understanding on the concepts and techniques of human resource analytics.
2. Familiarize the students on how to prepare HR reports and identify decision technologies.
3. Develop a structured approach among students to apply judgment, and generate insight from data for enhanced decision making.

Course Outcomes:
On successful completion of the course a student will be able to:
CO1. Explain internal and external human resource metrics benchmarks and indicators.
CO2. Reproduce knowledge on relational databases and make recommendations regarding the appropriate HRIS to meet organization's human resource needs.
CO3. To identify appropriate software to record, maintain, retrieve and analyze human resources information (e.g., staffing, skills, performance ratings and compensation information).
CO4. To describe both the quantitative and qualitative analysis to understand trends and indicators in human resource data.

Modules	Blooms level*	Number of hours
Module I:Introduction to HR Analytics Basics of HR Analytics: Concept and Evolution of HR Analytics & data sources - HCM: 21Model, Use of workforce analytics to improve decision making, Analytics and Prediction, Introduction to HR Metrics and predictive analytics, Importance of HR Analytics, Data Analytic techniques using software packages, Future of Human Resource Analytics.HR Metrics and HR Analytics; Intuition versus analytical thinking.	L1, L2	7
Module II: Creating business understanding for HR initiatives	L1, L2	6

Workforce segmentation and search for critical job roles; Statistical driver analysis – association and causation; Linking HR measures to business results; choosing the right measures for scorecards; Identifying and using key HR Metrics.		
Module III:Forecasting budget numbers for HR costs Workforce planning including internal mobility and career pathing; training and development requirement forecasting and measuring the value and results of improvement initiatives; optimizing selection and promotion decisions	L1, L2	8
Module IV:Predictive modelling in HR Employee retention and turnover; workforce productivity and performance; scenario planning.	L1,L2	6
Module V:Communicating with data and visuals Data requirements; identifying data needs and gathering data; HR data quality, validity and consistency; Using historical data; Data exploration; Data visualization; Association between variables; Insights from reports; Root cause analysis of HR issues	L1, L2	4

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text and Reference Books:

1. Fitz-Enz, J (2010)*The New HR Analytics: Predicting the Economic Value of Your Company's Human Capital Investments*, Amacom.
2. Pease,G Byerly, B& Fitz-enz, J(2012).*Human Capital Analytics: How to Harness the Potential of Your Organization's Greatest Asset*, John Wiley & Sons

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	2									1	1		
CO2	1						1			2	1		
CO3								2	1		1		
CO4	2	1									1		

1: strongly related, 2: moderately related and 3: weakly related

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BUA4405	MARKETING ANALYTICS	L	T	P	C
Version 1.1	Latest Approved	2	0	2	3
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course provides an understanding on the use of analytics in Marketing Management. The course offers insights to the students on the use of predictive analysis in decision making. The course familiarizes the students on the concept of the market place, various segments of products and services in the markets, and changing consumer needs in the markets.

Course Objectives

The objective of this course is to

1. Develop the ability to critically evaluate business problems and to determine the most appropriate analytical technique address marketing problems.
2. Acquaint the students to develop and implement the marketing strategy by providing a framework from which to identify and evaluate strategic options and programs.
3. Enable students to solve real-world marketing problems across a wide range of industries, giving them a competitive edge.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Identify various methods followed build CRM practices and various positioning strategies followed by the companies.

CO2: Contrast the characteristics of industrial and consumer goods.

CO3: Identify and apply the various techniques of predictive analysis in the different market situations.

CO4: Explain the need for digital evolution in marketing.

Modules	Blooms level*	Number of hours
Module 1: Introduction to Marketing Understanding the marketplace and consumer needs, Designing a Customer Driven Marketing Strategy, Building Customer Relationships, Consumer Behaviour and Business Buyer Behaviour	L2,L5	7
Module 2: Marketing Strategy Market Segmentation and Product Positioning, Market Segmentation, Market Targeting, Target Market Strategies, Product Positioning and Differentiation, Choosing a Differentiation and Positioning Strategy.	L1, L4	8
Module 3: Product and Service Products and services, product and service classifications, consumer products, industrial products, product and service decisions, product	L2,L4	7

and service attributes, product support services, services marketing – the nature and characteristics of a service.		
Module 4: Retail Analytics – I Customer Analytics Overview; Quantifying Customer Value, Using Stata for Basic Customer Analysis, Predicting Response with RFM Analysis, Statistics Review, Predicting Response with Logistic Regression, Predicting Response with Neural Networks, Predicting Response with Decision Trees.	L2,L3, L5	6
Module 5: Retail Analytics – II The digital evolution of retail marketing, Digital natives, Constant connectivity Social interaction, Predictive modelling, Keeping track, Data availability, Efficiency optimization.	L2,L4	8

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4:Analysis; L5:Synthesis, L6:Evaluation*

Text Books:

1. Kotler, P., Keller, K. L. ,Koshy, A., Jha, M. Marketing Management: A South Asian Perspective. New Delhi: Pearson Education , 14th edn,.2013
2. Rajan, S. Marketing Management. India: New Delhi: Tata McGraw-Hill Education. 4th edn,2005

Reference Books:

1. Karunakaran, K..Marketing Management. New Delhi: Himalaya Publishing House. 3rd edition, 2013.
2. Kumar, A., Meenakshi. Marketing Management. New Delhi: Vikas Publishing House Pvt Ltd. , 2nd edition,2013
3. Ramaswamy, V. S., Namakumari, S. Marketing Management Global Perspective, Indian Context. New Delhi: Macmillan India Limited. 3rd edition, 2009

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	IP	EE	EP
Weightage (%)	5	25	50	20

IP: Internal Practical, EE: End Semester Examination; EP: External Practical; A: Attendance

CO, PO and PSO mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	-	-	1	1	-	-	1	1	1	1	1	-	-
CO2	-	-	1	1	-	-	1	1	1	1	1	-	-
CO3	-	-	1	1	-	-	1	1	1	1	1	-	-
CO4	-	-	1	1	-	-	1	1	1	1	1	-	-

1: strongly related, 2: moderately related and 3: weakly related

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BUA4406	**DATA PRIVACY AND DATA SECURITY LAWS**	L	T	P	C
Version 1.1	Latest Approved	2	0	0	2
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

This course is designed to familiarize the students with the basic concepts of data privacy issues and security laws including current and proposed laws and regulations that govern data security and privacy.

Course Objectives

The objective of this course is to:

1. Provide the foundational knowledge based on data security investigation and data policy questions concerning the value of data security and data privacy regulations.
2. Emphasize on the real world effects of data breaches on individuals and businesses.
3. Provide an understanding on how to secure data and balancing of interests among individuals, government, and enterprises from the technical and legal perspective.

Course Outcomes

On completion of this course, the students will be able to:

CO1: Explain the fundamental concepts of data security and security laws.
CO2: Explain the business needs for data privacy and security investigation.
CO3: Assess the risk for data security.
CO4: Identify the legal, professional and ethical issues related to data.

Modules	Blooms level*	Number of hours
MODULE 1: Introduction to Data Security History of data security, Meaning of data Security and data privacy, Critical Characteristics and components of Data security, Need for Security, Business Needs, Threats, Attacks, Meaning of term personal data, data processing, data protection, NSTISSC Data Security Model, Balancing Security and Access to data, The SDLC model, The Security SDLC	L1, L2	6
MODULE 2: Introduction to Data Security Laws Introduction of the General Data Protection Regulation (GDPR), rationale for the introduction of the GDPR , primary objectives of the General Data Protection Regulation, scope of data processing activities covered by the GDPR, territorial scope of the GDPR regarding the location of personal data processing and data subjects, GDPR impact on Indian Companies, Data protection Laws in India	L1, L2	6

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MODULE 3: Data Privacy: Legal Issues and Landscape Development of Privacy Laws (historical and legal context), Fair Information Principles, The Statutory Landscape in the US, Indian IT Act, Adjudication under Indian IT ACT, IT Service Management Concept, IT Audit standards, ISO/IEC 27000 Series, COBIT, HIPPA, SOX, System audit, Information security audit, ISMS, SoA (Statement of Applicability), BCP (Business Continuity Plan), DR (Disaster Recovery), RA (Risk Analysis/Assessment)	L1, L2	6
MODULE 4: Data Security Analysis and Risk Management **Risk Management:** Identification, Assessment and controlling of Risk **Logical Design:** Blueprint for Security, Information Security Policy, Standards and Practices, ISO17799/BS 7799, NIST Models, VISA International Security Model, Design of Security Architecture, Planning for Continuity **Physical Design:** Security Technology, IDS, Scanning and Analysis Tools, Cryptography, Access Control Devices, Physical Security, Security and Personnel	L1, L2	6

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis; L6-Evaluation*

Text and Reference Books

1. Micki Krause, Harold F. Tipton, "Handbook of Information Security Management", Vol 1-3 CRC Press LLC, 2004.
2. Stuart McClure, Joel Scrambray, George Kurtz, "Hacking Exposed", Tata McGraw-Hill, 2003.
3. Matt Bishop, " Computer Security Art and Science", Pearson/PHI, 2002.
4. International Guide to Privacy – American Bar Association (Privacy)
5. International Guide to Cyber Security – American Bar Association (Cyber Security)
6. Roadmap to an Enterprise Security Program - American Bar Association (Roadmap)
7. The Executive Guide to Information Security – Egan and Mather (Guide)
8. Case studies from the Harvard Business School; http://cb.hbsp.harvard.edu/cb/access/5263390

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; A: Attendance

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	2	3	2	1	3	--	2	2	2	--	1	--	3
CO2	2	2	--	1	3	--	2	2	--	--	1	--	2
CO3	2	3	1	1	2	--	2	--	2	--	1	--	3
CO4	2	2	2	1	1	--	2	2	2	--	1	--	--

1: strongly related, 2: moderately related and 3: weakly related

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BUA4437	**DISSERTATION (ANALYTICS PROJECT)**	L	T	P	C
Version 1.1		0	0	0	6
Pre-requisites/Exposure					
Co-requisites					

Catalog Description

Under this, it is usual to give the student some discretion in the choice of topic for the dissertation and the approach to be adopted. The dissertation topic is related to the field of specialization. Deciding this is often the most difficult part of the dissertation process, and requires thorough preparation and background research.

The aim of the dissertation is to provide the students with an opportunity to further their intellectual and personal development in their chosen field by undertaking a significant practical unit of activity, having an educational value at a level commensurate with the award of their degree.

Course Objectives

The objective of this course is to:

1. Understand and apply theoretical frameworks to the chosen area of study.
2. Produce a coherent and logically argued piece of writing that demonstrates competence in research and the ability to operate independently.

Course Outcomes

On completion of Dissertation, the students will be able to

CO1: Describe a relevant area of career development, career coaching, coaching or work-related learning studies.

CO2: Identify research methods and state research questions.

CO3: Critically analyze and evaluate the knowledge and understanding in relation to the agreed area of study.

CO4: Integrate theory and practice for the development of responses on the basis of the evaluation and analysis undertaken.

CO5: Communicate in written form by integrating, analyzing and applying key texts and practices.

CO6: Demonstrate advanced critical research skills in relation to career development or work-related learning studies.

Planning the dissertation	**Blooms level***	**Number of hours**
• Selecting a topic for investigation. • Establishing the precise focus of the study by deciding on the aims and objectives of the dissertation, or formulating questions to be investigated. Consider very carefully what is worth investigating and its feasibility. • Drawing up initial dissertation outlines considering the aims	L1, L2 ,L3,L4,L5,L6	6hours a Week

and objectives of the dissertation. Workout various stages of dissertation • Devising a timetable to ensure that all stages of dissertation are completed in time. The timetable should include writing of the dissertation and regular meetings with your dissertation guide.		

**Bloom's Level: L1-Knowledge; L2-Comprehension; L3-Application; L4-Analysis; L5-Synthesis; L6-Evaluation*

Modes of Evaluation: Viva/ Report Examination

Examination Scheme:

Components	Content & Layout of Report	Conceptual Framework	Objectives & Methodology	Implications & Conclusions	Viva-Voce
Weightage	30	10	15	15	30

CO, PO and PSO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	1	--	--	--	--	--	--	1	--	--	--	1	--
CO2	--	1	--	--	--	--	--	--	--	--	--	1	--
CO3	--	1	2	--	--	--	--	--	--	--	--	1	--
CO4	1	--	--	--	--	--	--	--	--	--	--	1	--
CO5	--	--	--	--	--	--	1	--	--	--	--	1	2
CO6	--	--	--	--	--	--	--	--	1	--	--	1	--

1: strongly related, 2: moderately related and 3: weakly related

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