# Presidency School of Management

# Master of Business Administration

## MBA (Business Analytics)

# Program Regulations and Curriculum

# 2025-2027

**Based on Choice Based Credit System (CBCS) and Outcome Based Education (OBE)**

**Regulations No.: PU/AC-26.22/PSOM18/MBL/2025-27**

***Resolution No 26.22 of the 26th Meeting of the Academic Council held on 25th July 2025, and ratified by the Board of Management in its 27th Meeting held on 28th July, 2025.***

**July-2025**

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# PART A – PROGRAM REGULATIONS AND CURRICULUM

## 1. Vision & Mission of the University and the School / Department:

### 1.1 Vision of the University:

To be a Value-driven Global University, excelling beyond peers and creating professionals of integrity and character, having concern and care for society.

### 1.2 Mission of the University:

- Commit to be an innovative and inclusive institution by seeking excellence in teaching, research and knowledge-transfer.
- Pursue Research and Development and its dissemination to the community, at large.
- Create, sustain and apply learning in an interdisciplinary environment with consideration for ethical, ecological and economic aspects of nation building.
- Provide knowledge-based technological support and services to the industry in its growth and development.
- To impart globally-applicable skill-sets to students through flexible course offerings and support industry's requirement and inculcate a spirit of new-venture creation.

### 1.3 Vision of the School:

To inspire and develop responsible leaders who generate meaningful and lasting impact on businesses, communities, and society

### 1.4 Mission of the School:

Our mission is to provide students with the knowledge, skills, and ethical foundation needed to lead with integrity and drive sustainable change in business and society

## 2. Preamble to the Program Regulations and Curriculum

This is the subset of Academic Regulations and it is to be followed as a requirement for the award of Master of Business Administration (MBA) Degree.

The Curriculum is designed to take into the factors listed in the Choice Based Credit System (CBCS) with focus on Social Project Based Learning, Industrial Training, and Internship to enable the students to become eligible and fully equipped for employment in industries, choose higher studies or entrepreneurship.

In exercise of the powers conferred by and in discharge of duties assigned under the relevant provision(s) of the Act, Statutes and Academic Regulations of the University, the Academic Council hereby makes the following Regulations.

## 3. Short Title and Commencement:

a. These Regulations shall be called the Master of Business Administration (MBA-Business Analytics) Program Regulations and Curriculum 2025-2027.
b. These Regulations are subject to, and pursuant to the Academic Regulations.
c. These Regulations shall be applicable to the ongoing Master of Business Administration (MBA-Business Analytics) Programs of the 2025-2027 batch, and to all other Master of Business Administration (MBA-Business Analytics) Programs which may be introduced in future.
d. These Regulations shall supersede all the earlier Master of Business Administration (MBA-Business Analytics) Program Regulations and Curriculum, along with all the amendments thereto.
e. These Regulations shall come into force from the Academic Year 2025-2026.

## 4. Definitions

In these Regulations, unless the context otherwise requires:

a. *"Academic Calendar" means the schedule of academic and miscellaneous events as approved by the Vice Chancellor;*
b. *"Academic Council" means the Academic Council of the University;*
c. *"Academic Regulations" means the Academic Regulations, of the University;*
d. *"Academic Term" means a Semester or Summer Term;*
e. *"Act" means the Presidency University Act, 2013;*
f. *"AICTE" means All India Council for Technical Education;*
g. *"Basket" means a group of courses bundled together based on the nature/type of the course;*
h. *"BOE" means the Board of Examinations of the University;*
i. *"BOG" means the Board of Governors of the University;*
j. *"BOM" means the Board of Management of the University;*
k. *"BOS" means the Board of Studies of a particular Department/Program of Study of the University;*
l. *"CGPA" means Cumulative Grade Point Average as defined in the Academic Regulations;*
m. *"Clause" means the duly numbered Clause, with Sub-Clauses included, if any, of these Regulations;*
n. *"COE" means the Controller of Examinations of the University;*
o. *"Course In Charge" means the teacher/faculty member responsible for developing and organizing the delivery of the Course;*
p. *"Course Instructor" means the teacher/faculty member responsible for teaching and evaluation of a Course;*
q. *"Course" means a specific subject usually identified by its Course-code and Course-title, with specified credits and syllabus/course-description, a set of references, taught by some teacher(s)/course-instructor(s) to a specific class (group of students) during a specific Academic Term;*
r. *"Curriculum Structure" means the Curriculum governing a specific Degree Program*

*offered by the University, and, includes the set of Baskets of Courses along with minimum credit requirements to be earned under each basket for a degree/degree with specialization/minor/honors in addition to the relevant details of the Courses and Course catalogues (which describes the Course content and other important information about the Course). Any specific requirements for a particular program may be brought into the Curriculum structure of the specific program and relevant approvals should be taken from the BOS and Academic Council at that time.*

s. *"DAC" means the Departmental Academic Committee of a concerned Department/Program of Study of the University;*

t. *"Dean" means the Dean / Director of the concerned School;*

u. *"Degree Program" includes all Degree Programs;*

v. *"Department" means the Department offering the degree Program(s) / Course(s) / School offering the concerned Degree Programs / other Administrative Offices;*

w. *"Discipline" means specialization or program of MBA Degree Program;*

x. *"HOD" means the Head of the concerned Department;*

y. *"L-T-P-C" means Lecture-Tutorial-Practical-Credit – refers to the teaching – learning periods and the credit associated;*

z. *"MOOC" means Massive Open Online Courses;*

aa. *"MOU" means the Memorandum of Understanding;*

bb. *"NPTEL" means National Program on Technology Enhanced Learning;*

cc. *"Parent Department" means the department that offers the Degree Program that a student undergoes;*

dd. *"Program Head" means the administrative head of a particular Degree Program/s;*

ee. *"Program Regulations" means the Bachelor of Technology Degree Program Regulations and Curriculum, 2025-2027;*

ff. *"Program" means the Master of Business Administration (MBA) Degree Program;*

gg. *"PSOM" means the Presidency School of Management;*

hh. *"Registrar" means the Registrar of the University;*

ii. *"School" means a constituent institution of the University established for monitoring, supervising and guiding, teaching, training and research activities in broadly related fields of studies;*

jj. *"Section" means the duly numbered Section, with Clauses included in that Section, of these Regulations;*

kk. *"SGPA" means the Semester Grade Point Average as defined in the Academic Regulations;*

ll. *"Statutes" means the Statutes of Presidency University;*

mm. *"Sub-Clause" means the duly numbered Sub-Clause of these Program Regulations;*

nn. *"Summer Term" means an additional Academic Term conducted during the summer break (typically in June-July) for a duration of about eight (08) calendar weeks, with a minimum of thirty (30) University teaching days;*

oo. *"SWAYAM" means Study Webs of Active Learning for Young Aspiring Minds.*

pp. *"UGC" means University Grants Commission;*

qq. *"University" means Presidency University, Bengaluru; and*

rr. *"Vice Chancellor" means the Vice Chancellor of the University.*

## 5. Program Description:

The Master of Business Administration (MBA-Business Analytics) Program Regulations and Curriculum 2025-2027 are subject to, and, pursuant to the Academic Regulations. These Program Regulations shall be applicable to the following ongoing Master of Business Administration (MBA-Business Analytics) Programs of 2025-2027 offered by the Presidency School of Management (PSOM):

1. Master of Business Administration (MBA)
   1.1 Master of Business Administration (FinTech)
   1.2 Master of Business Administration (Applied Artificial Intelligence)
2. Master of Business Administration (Business Analytics)
3. Master of Business Administration (Digital Marketing)
4. Master of Business Administration (Marketing & Finance)
5. Master of Business Administration (Banking & Finance Management)

**5.1** These Program Regulations shall be applicable to other similar programs, which may be introduced in future.

**5.2** These Regulations may evolve and get amended or modified or changed through appropriate approvals from the Academic Council, from time to time, and shall be binding on all concerned.

**5.3** The effect of periodic amendments or changes in the Program Regulations, on the students admitted in earlier years, shall be dealt with appropriately and carefully, so as to ensure that those students are not subjected to any unfair situation whatsoever, although they are required to conform to these revised Program Regulations, without any undue favor or considerations:

## 6. Minimum and Maximum Duration:

**6.1** Master of Business Administration (MBA-Business Analytics) Degree Program is a Two-Year, Full-Time Semester based program. The minimum duration of the MBA-Business Analytics Program is two (02) years and each year comprises of two academic Semesters (Odd and Even Semesters) and hence the duration of the MBA-Business Analytics program is four (04) Semesters.

**6.2** A student who for whatever reason is not able to complete the Program within the normal period or the minimum duration (number of years) prescribed for the Program, may be allowed a period of two years beyond

the normal period to complete the mandatory minimum credits requirement as prescribed by the concerned Program Regulations and Curriculum. In general, the permissible maximum duration (number of years) for completion of Program is 'N' + 2 years, where 'N' stands for the normal or minimum duration (number of years) for completion of the concerned Program as prescribed by the concerned Program Regulations and Curriculum.

**6.3** The time taken by the student to improve Grades/CGPA, and in case of temporary withdrawal/re-joining (Refer to Clause 16.1 of Academic Regulations), shall be counted in the permissible maximum duration for completion of a Program.

**6.4** In exceptional circumstances, such as temporary withdrawal for medical exigencies where there is a prolonged hospitalization and/or treatment, as certified through hospital/medical records, women students requiring extended maternity break (certified by registered medical practitioner), and, outstanding sportspersons representing the University/State/India requiring extended time to participate in National/International sports events, a further extension of one (01) year may be granted on the approval of the Academic Council.

**6.5** The enrolment of the student who fails to complete the mandatory requirements for the award of the concerned Degree (refer Section 19.0 of Academic Regulations) in the prescribed maximum duration (Sub-Clauses 18.1 and 18.2 of Academic Regulations), shall stand terminated and no Degree shall be awarded.

## 7. Program Educational Objectives (PEO)

After two years of successful completion of the program, the graduates shall be:

**PEO1:** Industry ready graduates having high integrity, social responsibility & leadership capabilities.

**PEO2:** Enhanced with analytical skills and design thinking approach to solve business problems.

**PEO3:** Able to foster entrepreneurial mind set through creativity and innovation.

**PEO4:** Enabled graduates to engage in and benefit from lifelong learning.

## 8. Program Outcomes (PO) and Program Specific Outcomes (PSO)

### 8.1 Program Outcomes (PO)

On successful completion of the Program, the students shall be able to:

**PO1:** An ability to lead themselves and others to achieve organizational goals contributing effectively to a team environment.
**PO2:** An ability to integrate functional knowledge and apply managerial skills in changing business environment.
**PO3:** An ability to identify real life problems in different management functions and solve them through strategic planning, critical thinking and innovation.
**PO4:** An ability to identify and evaluate business ideas and opportunities.
**PO5:** An ability to make data driven decisions and effectively communicate to different stakeholders.
**PO6:** An ability to evaluate and integrate ethical and societal considerations when making business decisions.
**PO7:** An ability to demonstrate commitment to continuous learning.

### 8.2 Program Specific Outcomes [PSOs]:

On successful completion of the Program, the students shall be able to:
On successful completion of the Master of Business Administration (MBA-Business Analytics) program from Presidency University, the student shall possess:

**PSO1** Analyze and interpret complex data sets to inform strategic business decisions.

**PSO2** Apply quantitative techniques to analyze business problems, predict trends, and derive actionable insights.

**PSO3** Utilize predictive and prescriptive analytics to forecast future business outcomes and recommend actions that optimize business processes and outcomes.

**PSO4** Integrate analytics into business strategies to drive innovation, improve customer experiences, and optimize operational performance.

**PSO5** Apply ethical principles in the collection, analysis, and use of data, ensuring compliance with legal and regulatory standards.

## 9. Admission Criteria (as per the concerned Statutory Body)

The University admissions shall be open to all persons irrespective of caste, class, creed, gender or nation. All admissions shall be made on the basis of merit in the qualifying examinations; provided that forty percent of the admissions in all Programs of the University shall be reserved for the students of Karnataka State and admissions shall be made through a Common Entrance Examination conducted by the State Government or its agency and seats shall be allotted as per the merit and reservation policy of the State Government from time to time**.** The admission criteria to the MBA Program is listed in the following Sub-Clauses:

**9.1** An applicant must have a graduation degree in any field from a recognized university with a minimum of 50% marks in the qualifying examination for the general category or 45% marks for SC/ST and other reserved categories and must have appeared in any national or state-level entrance examination such as CAT, XAT, MAT, CMAT, ATMA, or KMAT.

**9.2** Reservation for the SC / ST and other backward classes shall be made in accordance with the directives issued by the Government of Karnataka from time to time.

**9.3** Admissions are offered to Foreign Nationals and Indians living abroad in accordance with the rules applicable for such admission, issued from time to time, by the Government of India.

**9.4** Candidates must fulfil the medical standards required for admission as prescribed by the University.

**9.5** If, at any time after admission, it is found that a candidate had not in fact fulfilled all the requirements stipulated in the offer of admission, in any form whatsoever, including possible misinformation and any other falsification, the Registrar shall report the matter to the Board of Management (BOM), recommending revoking the admission of the candidate.

**9.6** The decision of the BOM regarding the admissions is final and binding.

## 10. Transfer of student(s) from another recognized University to the 2nd year (3rd Semester) of the MBA-Business Analytics Program of the University

A student who has completed the 1st Year (i.e., passed in all the Courses / Subjects prescribed for the 1st Year) of the MBA-Business Analytics Two-Year Degree Program from another recognized University, may be permitted to transfer to the 2nd Year (3rd Semester) of the MBA-Business Analytics Program of the University as per the rules and guidelines prescribed in the following Sub-Clauses:

**10.1.1** The student shall submit the Application for Transfer along with a non-refundable Application Fee (as prescribed by the University from time to time) to the University no later than July of the concerned year for admission to the 2nd Year (3rd Semester) MBA-Business Analytics Program commencing on August on the year concerned.

**10.1.2** The student shall submit copies of the respective Marks Cards / Grade Sheets / Certificates along with the Application for Transfer.

**10.1.3** The transfer may be provided on the condition that the Courses and

Credits completed by the concerned student in the 1st Year of the MBA-Business Analytics Two Degree Program from the concerned University, are declared equivalent and acceptable by the Equivalence Committee constituted by the Vice Chancellor for this purpose. Further, the Equivalence Committee may also prescribe the Courses and Credits the concerned students shall have to mandatorily complete, if admitted to the 2nd Year of the MBA Program of the University.

**10.1.4** The Program allotted to the student concerned shall be the decision of the University and binding on the student.

## 11. Change of Program

A student admitted to a particular Program of the MBA-Business Analytics Program will normally continue studying in that Program till the completion of the program. However, the University reserves the right to provide the option for a change of Program, or not to provide the option for a change of Program, at the end of 1st Year of the MBA-Business Analytics Program to eligible students in accordance with the following rules and guidelines: framed by the University from time to time.

**11.1** Normally, only those students, who have passed all the Courses prescribed for the 1st Year of the MBA. Program and obtained a CGPA of not less than 6.00 at the end of the 2nd Semester, shall be eligible for consideration for a change of Program.

**11.2** Change of Program, if provided, shall be made effective from the commencement of the 3rd Semester of the MBA Program. There shall be no provision for change of Program thereafter under any circumstances whatsoever.

**11.3** The student provided with the change of Program shall fully adhere to and comply with the Program Regulations of the concerned Program of the MBA Program, the Fee Policy pertaining to that Program of the MBA Program, and, all other rules pertaining to the changed Program existing at the time.

**11.4** Change of Program once made shall be final and binding on the student. No student shall be permitted, under any circumstances, to refuse the change of Program offered.

**11.5** The eligible student may be allowed a change in Program, strictly in order of *inter se* merit, subject to the conditions given below:

**11.5.1** The actual number of students in the 3rd Semester in any particular Program to which the transfer is to be made, should not exceed the intake fixed by the University for the concerned Program;

**11.5.2** The actual number of students in any Program from which transfer is being sought does not fall below 75% of the total intake fixed by the University for the concerned Program.

**11.5.3** The process of change of Program shall be completed within the first five days of Registration for the 3rd Semester of the MBA-Business Analytics Program.

## 12. Specific Regulations regarding Assessment and Evaluation – including the Assessment Details of NTCC Courses, Weightages of Continuous Assessment and End Term Examination for various Course Categories

**12.1** The academic performance evaluation of a student in a Course shall be according to the University Letter Grading System based on the class performance distribution in the Course.

**12.2** Academic performance evaluation of every registered student in every Course registered by the student is carried out through various components of Assessments spread across the Semester. The nature of components of Continuous Assessments and the weightage given to each component of Continuous Assessments (refer Clause 0) shall be clearly defined in the Course Plan for every Course, and approved by the DAC.

**12.3** Format of the End-Term examination shall be specified in the Course Plan.

**12.4** Grading is the process of rewarding the students for their overall performance in each Course. The University follows the system of Relative Grading with statistical approach to classify the students based on the relative performance of the students registered in the concerned Course except in the following cases:

- Non-Teaching Credit Courses (NTCC)
- Courses with a class strength less than 30

Absolute grading method may be adopted, where necessary with prior approval of concerned DAC.

Grading shall be done at the end of the Academic Term by considering the aggregate performance of the student in all components of Assessments prescribed for the Course. Letter Grades (Clause 8.10 of Academic Regulations) shall be awarded to a student based on her/his overall performance relative to the class performance distribution in the concerned Course. These Letter Grades not only indicate a qualitative assessment of the student's performance but also carry a quantitative (numeric) equivalent called the Grade Point.

### 12.5 Assessment Components and Weightage

**Table 12.5.1: Assessment Components and Weightage for different category of Courses**

| Theory Courses - Weightage - 60: 40 | | | | | | |
|---|---|---|---|---|---|---|
| Continuous Assessment* - 35% | | | | Midterm | End term | Total |
| Assessment 1 | Assessment 2 | Assessment 3 | Assessment 4 | 25% | 40% | 100% |

| Lab/CA Courses - Weightage - 75: 25 | | | | | |
|---|---|---|---|---|---|
| Continuous Assessment* - 75% | | | | End term | Total |
| Practice Assessment 1 | Practice Assessment 2 | Practice Assessment 3 | Practice Assessment 4 | Assessment & Viva 25% | 100% |

***Minimum 03 assessments.***

**Skill based Courses** like Industry Internship, Capstone project, Research Dissertation, Integrative Studio, Interdisciplinary Project, Summer / Short Internship, Social Engagement / Field Projects, Portfolio, and such similar Non-Teaching Credit Courses, where the pedagogy does not lend itself to a typical L-T-P-C structure.

Guidelines for the assessment components for the various types of Courses, with recommended weightages, shall be specified in the concerned Program Regulations and Curriculum / Course Plans, as applicable.

The exact weightages of Evaluation Components shall be clearly specified in the concerned PRC and respective Course Plan.

Normally, for Practice/Skill based Courses, without a defined credit structure (L–T–P-C) [NTCC], but with assigned Credits (as defined in Clause 5.2 of the Academic Regulations), the method of evaluation shall be based only on Continuous Assessments. The various components of Continuous Assessments, the distribution of weightage among such components, and the method of evaluation/assessment, shall be as decided and indicated in the Course Plan/PRC. The same shall be approved by the respective DAC.

### 12.6 Minimum Performance Criteria:

#### 12.6.1 Theory only Course and Lab/Practice Embedded Theory Course

A student shall satisfy the following minimum performance criteria to be eligible to earn the credits towards the concerned Course:

a. A student must obtain a minimum of 30% of the total marks/weightage assigned to the End Term Examinations in the concerned Course.

b. The student must obtain a minimum of 40% of the AGGREGATE of the marks/weightage of the components of Continuous Assessments, Mid Term Examinations and End Term Examinations in the concerned Course.

#### 12.6.2 Lab/Practice only Course and Project Based Courses

The student must obtain a minimum of 40% of the AGGREGATE of the marks/weightage of all assessment components in the concerned Course.

**12.6.2.1** A student who fails to meet the minimum performance criteria listed above in a Course shall be declared as "Fail" and given "F" Grade in the concerned Course. For theory Courses, the student shall have to re-appear in the "Make-Up Examinations" as scheduled by the University in any subsequent semester, or, re-appear in the End Term Examinations of the same Course when it is scheduled at the end of the following Semester or Summer Term, if offered. The marks obtained in the Continuous Assessments (other than the End Term Examination) shall be carried forward and be included in computing the final grade, if the student secures the minimum requirements (as per Clause 12.6.1, 12.6.2 of Academic Regulations in the "Make-Up Examinations" of the concerned Course. Further, the student has an option to re-register for the Course and clear the same in the summer term/ subsequent semester if he/she wishes to do so, provided the Course is offered.

## 13 Additional clarifications - Rules and Guidelines for Transfer of Credits from MOOC, etc. – Note: These are covered in Academic Regulations.

The University allows students to acquire credits from other Indian or foreign institutions and/or Massive Open Online Course (MOOC) platforms, subject to prior

approval. These credits may be transferred and counted toward fulfilling the minimum credit requirements for the award of a degree. The process of transfer of credits is governed by the following rules and guidelines:

**13.1** The transfer of credits shall be examined and recommended by the Equivalence Committee (Refer ANNEXURE B of Academic Regulations) and approved by the Dean - Academics.

**13.2** Students may earn credits from other Indian or foreign Universities/Institutions with which the University has an MOU, and that MOU shall have specific provisions, rules and guidelines for transfer of credits. These transferred credits shall be counted towards the minimum credit requirements for the award of the degree.

**13.3** Students may earn credits by registering for Online Courses offered by *Study Web of Active Learning by Young and Aspiring Minds* (SWAYAM) and *National Program on Technology Enhanced Learning* (NPTEL), or other such recognized Bodies/ Universities/Institutions as approved by the concerned BOS and Academic Council from time to time. The concerned School/Parent Department shall publish/include the approved list of Courses and the rules and guidelines governing such transfer of credits of the concerned Program from time to time. The Rules and Guidelines for the transfer of credits specifically from the Online Courses conducted by SWAYAM/ NPTEL are as stated in the following Sub-Clauses:

**13.3.1** A student may complete SWAYAM/NPTEL/other approved MOOCs as mentioned in Clause (as per academic regulations) and transfer equivalent credits to partially or fully complete the mandatory credit requirements of Discipline Elective Courses and/or the mandatory credit requirements of Open Elective Courses as prescribed in the concerned Curriculum Structure. However, it is the sole responsibility of the student to complete the mandatory credit requirements of the Discipline Elective Courses and the Open Elective Courses as prescribed by the Curriculum Structure of the concerned Program.

**13.3.2** SWAYAM/NPTEL/ other approved MOOCs as mentioned in Clause (as per academic regulations) shall be approved by the concerned Board of Studies and placed.

**13.3.3** Parent Departments may release a list of SWAYAM/NPTEL/other approved MOOCs for Pre-Registration as per schedule in the Academic Calendar or through University Notification to this effect.

**13.3.4** Students may Pre-Register for the SWAYAM/NPTEL/other approved MOOCs in the respective Departments and register for the same Courses as per the schedule announced by respective Online Course Offering body/institute/ university.

**13.3.5** A student shall request for transfer of credits only from such approved Courses as mentioned in Sub-Clause, 13.3.2 above.

**13.3.6** SWAYAM/NPTEL/other approved MOOCs Courses are considered for transfer of credits only if the concerned student has successfully completed the SWAYAM/NPTEL/other approved MOOCs and obtained a certificate of successful/satisfactory completion.

**13.3.7** A student who has successfully completed the approved SWAYAM/NPTEL/ other approved MOOCs and wants to avail the provision of transfer of equivalent credits, must submit the original Certificate of Completion, or such similar authorized documents to the HOD concerned, with a written request for the transfer of the equivalent credits. On verification of the Certificates/Documents and approval by the HOD concerned, the Course(s) and equivalent Credits shall have forwarded to the COE for processing of results of the concerned Academic Term.

**13.3.8** The credit equivalence of the SWAYAM/NPTEL/other approved MOOCs are based on Course durations and/or as recommended by the Course offering body/institute/university. The Credit Equivalence mapped to SWAYAM/ NPTEL approved Courses based on Course durations for transfer of credits is summarized in Table shown below. The Grade will be calculated from the marks received by the Absolute Grading Table in the academic regulations.

**Table 13.3.2: Durations and Credit Equivalence for Transfer of Credits from SWAYAM-NPTEL/ other approved MOOC Courses**

| Sl. No. | Course Duration | Credit Equivalence |
|---|---|---|
| 1 | 4 Weeks | 1 Credit |
| 2 | 8 Weeks | 2 Credits |
| 3 | 12 Weeks | 3 Credits |

**13.3.9** The maximum permissible number of credits that a student may request for credit transfer from MOOCs shall not exceed 20% of the mandatory minimum credit requirements specified by the concerned Program Regulations and Curriculum for the award of the concerned Degree.

**13.3.10** The University shall not reimburse any fees/expense; a student may incur for the SWAYAM/NPTEL/other approved MOOCs.

**13.4** The maximum number of credits that can be transferred by a student shall be limited to forty percent (40%) of the mandatory minimum credit requirements specified by the concerned Program Regulations and Curriculum for the award of the concerned Degree. However, the grades obtained in the Courses transferred from other Institutions/MOOCs, as mentioned in this Section, shall not be included in the calculation of the CGPA.

## PART B - PROGRAM STRUCTURE

### 14 Structure/Component with Credit Requirements Course Baskets and Minimum Basket Wise Credit Requirements:

**MBA** (**Business Analytics**) Program Structure (2025-2027) totalling to 102 credits. Table 14.1.3 summarizes the type of baskets, number of courses under each basket and the associated credits that are mandatorily required for the completion of the Degree.

**Table 14.1.3: MBA (Business Analytics ) Single Specialization Program Structure 2025-2027: Summary of Mandatory Courses and Minimum Credit Contribution from various Baskets**

| Sl. No. | Baskets | | Credit Contribution |
|---|---|---|---|
| 1 | PROGRAM CORE (PC) | | 52 |
| 2 | SPECIALIZATION TRACK (ST) | TRACK-CORE (STC) | 16 |
| | | TRACK-ELECTIVE (STE) | 24 |
| 3 | PRACTICE (PR) | | 10 |
| | **Total Credits** | | **102 (Minimum)** |

### 15. Minimum Total Credit Requirements of Award of Degree:

As per the AICTE guidelines, a minimum of 102 credits is required for the award of a Master of Business Administration (MBA-Business Analytics) degree.

### 16. Other Specific Requirements for Award of Degree, if any, as prescribed by the Statutory Bodies.

16.1 The award of the Degree shall be recommended by the Board of Examinations and approved by the Academic Council and Board of Management of the University**.**

16.2 A student shall be declared to be eligible for the award of the concerned Degree if she/he:

a. Fulfilled the Minimum Credit Requirements and the Minimum Credits requirements under various baskets;

b. Secure a minimum CGPA of 5.00 in the concerned Program at the end of the Semester/Academic Term in which she/he completes all the requirements for the award of the Degree as specified in Sub-Clause a of Academic Regulations**;**

c. No dues to the University, Departments, Hostels, Library, and any other such Centers/ Departments of the University; and

d. No disciplinary action is pending against her/him.

# PART C - CURRICULUM STRUCTURE/LIST

**17. Curriculum Structure – Basket Wise Course List (not Semester Wise) List of Courses Tabled – aligned to the Program Structure (Course Code, Course Name, Credit Structure (LTPC), Contact Sessions, Course Basket, Type of Skills etc., as applicable).**

**Table 17.1.4: MBA (Business Analytics) Program Structure 2025-2027**

**Program Core (PC)**

| S. NO. | BASKET | COURSE CODE | COURSE NAME | L | T | P | C |
|---|---|---|---|---|---|---|---|
| 1 | PC | FIN4111 | Financial Accounting and Reporting | 3 | 1 | 0 | 4 |
| 2 | PC | FIN4112 | Financial Modelling and Corporate Finance | 2 | 1 | 2 | 4 |
| 3 | PC | GMM4111 | Managerial Economics | 2 | 1 | 0 | 3 |
| 4 | PC | ENG4001 | Global Business Communication | 2 | 0 | 2 | 3 |
| 5 | PC | GMM4113 | Business Strategy and Corporate Transformation | 2 | 1 | 0 | 3 |
| 6 | PC | GMM4114 | Business Law and Regulatory Compliance | 3 | 0 | 0 | 3 |
| 7 | PC | GMM4115 | Corporate Governance, Ethics and Social Responsibility | 2 | 1 | 0 | 3 |
| 8 | PC | GMM4116 | Entrepreneurship and Innovation Management | 1 | 0 | 4 | 3 |
| 9 | PC | MKT4111 | Marketing Management - Theories and Practices | 2 | 1 | 0 | 3 |
| 10 | PC | MKT4112 | Digital Marketing Strategy, Tools and Trends | 2 | 1 | 2 | 4 |
| 11 | PC | OBH4111 | Human Behaviour in Organizations | 2 | 1 | 0 | 3 |
| 12 | PC | OBH4112 | People, Performance and HR Strategy | 2 | 1 | 0 | 3 |
| 13 | PC | OPS4111 | Production, Operations and Logistics Management | 2 | 1 | 0 | 3 |
| 14 | PC | QNT4111 | Applied Business Statistics | 2 | 0 | 2 | 3 |
| 15 | PC | QNT4112 | Applied Data Analysis and Visualization | 2 | 0 | 2 | 3 |
| 16 | PC | QNT4113 | Business Research and Analytics | 3 | 0 | 2 | 4 |
| | | | | | | **Total** | **52** |

**Table 17.1.5: List of Elective Courses under various Specializations/Stream Basket:**

| SPECIALIZATION TRACK | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TRACK CORE – BUSINESS ANALYTICS** | | | | | | | |
| **Sl. No.** | **Course Basket** | **Course Code** | **Course Name** | **L** | **T** | **P** | **C** |
| 1 | STC1 | QNT5121 | Programming for Business Data Analytics | 3 | 0 | 2 | 4 |
| 2 | STC2 | QNT5122 | Data Story Telling | 3 | 0 | 2 | 4 |
| 3 | STC3 | QNT5123 | Predictive Analytics and Business Forecasting | 3 | 0 | 2 | 4 |
| 4 | STC4 | QNT5124 | Data Mining and Intelligent Decision Making | 3 | 0 | 2 | 4 |
| | | | | | | **Total** | **16** |
| **TRACK ELECTIVE – BUSINESS ANALYTICS** | | | | | | | |
| **List of Specialization Track Electives Courses- Minimum of 24 credits is to be earned by the student in particular track** | | | | | | | |
| **Sl. No.** | **Course Basket** | **Course Code** | **Course Name** | **L** | **T** | **P** | **C** |
| 1 | STE | QNT5113 | Computer Vision Tools for Business | 2 | 0 | 2 | 3 |
| 2 | STE | QNT5114 | AI and Machine Learning for Business Applications | 2 | 0 | 2 | 3 |
| 3 | STE | QNT5115 | Data Architecture and Database Systems | 2 | 0 | 2 | 3 |
| 4 | STE | QNT5116 | Deep Learning Techniques and Applications | 2 | 0 | 2 | 3 |
| 5 | STE | QNT5117 | HealthTech and Pharma Analytics | 2 | 0 | 2 | 3 |
| 6 | STE | QNT5118 | Analytics-Driven Supply Chain Optimization | 2 | 0 | 2 | 3 |
| 7 | STE | QNT5119 | Text Analytics and Natural Language Processing | 2 | 0 | 2 | 3 |
| 8 | STE | QNT5120 | MarTech and AdTech in Practice | 2 | 0 | 2 | 3 |
| 9 | STE | QNT5125 | BFSI Analytics | 2 | 0 | 2 | 3 |
| 10 | STE | QNT5126 | Retail Marketing Analytics | 2 | 0 | 2 | 3 |
| 11 | STE | QNT5127 | IoT and Sensor Data Analytics | 2 | 0 | 2 | 3 |
| 12 | STE | QNT5128 | FinTech and Blockchain Analytics | 2 | 0 | 2 | 3 |
| 13 | STE | QNT5129 | Strategic HR Analytics | 2 | 0 | 2 | 3 |
| 14 | STE | QNT5130 | Digital and Social Media Analytics | 2 | 0 | 2 | 3 |
| 15 | STE | QNT5131 | Risk and Fraud Analytics | 2 | 0 | 2 | 3 |
| 16 | STE | QNT5132 | Business Intelligence and Visualization | 2 | 0 | 2 | 3 |

| Table 17.1.6: MBA-(Business Analytics) Program Structure 2025-2027: Practice (PR) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **S. NO.** | **BASKET** | **COURSE CODE** | **COURSE NAME** | **L** | **T** | **P** | **C** |
| 1 | PR | INT7111 | Summer Internship Project | - | - | - | 4 |
| 2 | PR | CRP7111 | Capstone Research Project | - | - | - | 6 |
| **Total** | | | | | | | **10** |

## 18 Practical/Skill based Courses-Internships/Thesis/Dissertation/Capstone Project Work/Portfolio/Mini project:

Practical / Skill based Courses like internship, project work, capstone project, research project / dissertation, and such similar courses, where the pedagogy does not lend itself to a typical L-T-P-C Structure as defined in Clause 5.1 of the Academic Regulations, are simply assigned the number of Credits based on the quantum of work / effort required to fulfill the learning objectives and outcomes prescribed for the concerned Courses. Such courses are referred to as Non-Teaching Credit Courses (NTCC). These Courses are designed to provide students with hands-on experience and skills essential for their professional development. These courses aim to equip students with abilities in problem identification, root cause analysis, problem-solving, innovation, and design thinking through industry exposure and project-based learning. The expected outcomes are first level proficiency in problem solving and design thinking skills to better equip MBA post graduates for their professional careers. The method of evaluation and grading for the Practical / Skill based Courses shall be prescribed and approved by the concerned Departmental Academic Committee (refer Annexure A of the Academic Regulations). The same shall be prescribed in the Course Handout.

### *18.1 Internship*

A student may undergo an internship for a period of 4-6 weeks in an industry / company or academic / research institution during the Semester Break between 2nd and 3rd Semesters, subject to the following conditions:

**18.1.1** The Internship shall be in conducted in accordance with the Internship Policy prescribed by the University from time to time.

**18.1.2** The number of Internships available for the concerned Academic Term. Further, the available number of internships shall be awarded to the

students by the University on the basis of merit using the CGPA secured by the student. Provided further, the student fulfils the criteria, as applicable, specified by the Industry / Company / research institution providing the Internship, as stated in Sub-Clause 2.6.1.2 above.

**18.1.3** A student may opt for Internship in an Industry / Company / research institution of her / his choice, subject to the condition that the concerned student takes the responsibility to arrange the Internship on her / his own. Provided further, that the Industry / Company or academic / research institution offering such Internship confirms to the University that the Internship shall be conducted in accordance with the Program Regulations.

**18.1.4** A student selected for an Internship in an industry / company or academic / research institution shall adhere to all the rules and guidelines prescribed in the Internship Policy of the University.

### *18.2 Dissertation*

A student may opt to do a Research Project / Dissertation for a period of 6-8 weeks in an Industry / Company or academic / research institution or the University Department(s) as an equivalence of Capstone Project, subject to the following conditions:

***18.2.1*** The Research Project / Dissertation shall be approved by the concerned HOD and be carried out under the guidance of a faculty member.

The student may do the Research Project / Dissertation in an Industry / Company or academic / research institution of her / his choice subject to the above-mentioned condition (Sub-Clause 2.6.4.1). Provided further, that the Industry / Company or academic / research institution offering such Research Project / Dissertation confirms to the University that the Research Project / Dissertation work will be conducted in accordance with the Program Regulations and requirements of the University.

## 19 List of Elective Courses under various Specializations/Stream Basket:

**Table 19.1.7: List of Elective Courses under various Specializations/Stream Basket:**

| SPECIALIZATION TRACK | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TRACK CORE – BUSINESS ANALYTICS** | | | | | | | |
| **Sl. No.** | **Course Basket** | **Course Code** | **Course Name** | **L** | **T** | **P** | **C** |
| 1 | STC1 | QNT5121 | Programming for Business Data Analytics | 3 | 0 | 2 | 4 |
| 2 | STC2 | QNT5122 | Data Story Telling | 3 | 0 | 2 | 4 |
| 3 | STC3 | QNT5123 | Predictive Analytics and Business Forecasting | 3 | 0 | 2 | 4 |
| 4 | STC4 | QNT5124 | Data Mining and Intelligent Decision Making | 3 | 0 | 2 | 4 |
| | | | | | | **Total** | **16** |
| **TRACK ELECTIVE – BUSINESS ANALYTICS** | | | | | | | |
| **List of Specialization Track Electives Courses- Minimum of 24 credits is to be earned by the student in particular track** | | | | | | | |
| **Sl. No.** | **Course Basket** | **Course Code** | **Course Name** | **L** | **T** | **P** | **C** |
| 1 | STE | QNT5113 | Computer Vision Tools for Business | 2 | 0 | 2 | 3 |
| 2 | STE | QNT5114 | AI and Machine Learning for Business Applications | 2 | 0 | 2 | 3 |
| 3 | STE | QNT5115 | Data Architecture and Database Systems | 2 | 0 | 2 | 3 |
| 4 | STE | QNT5116 | Deep Learning Techniques and Applications | 2 | 0 | 2 | 3 |
| 5 | STE | QNT5117 | HealthTech and Pharma Analytics | 2 | 0 | 2 | 3 |
| 6 | STE | QNT5118 | Analytics-Driven Supply Chain Optimization | 2 | 0 | 2 | 3 |
| 7 | STE | QNT5119 | Text Analytics and Natural Language Processing | 2 | 0 | 2 | 3 |
| 8 | STE | QNT5120 | MarTech and AdTech in Practice | 2 | 0 | 2 | 3 |
| 9 | STE | QNT5125 | BFSI Analytics | 2 | 0 | 2 | 3 |
| 10 | STE | QNT5126 | Retail Marketing Analytics | 2 | 0 | 2 | 3 |
| 11 | STE | QNT5127 | IoT and Sensor Data Analytics | 2 | 0 | 2 | 3 |
| 12 | STE | QNT5128 | FinTech and Blockchain Analytics | 2 | 0 | 2 | 3 |
| 13 | STE | QNT5129 | Strategic HR Analytics | 2 | 0 | 2 | 3 |
| 14 | STE | QNT5130 | Digital and Social Media Analytics | 2 | 0 | 2 | 3 |
| 15 | STE | QNT5131 | Risk and Fraud Analytics | 2 | 0 | 2 | 3 |
| 16 | STE | QNT5132 | Business Intelligence and Visualization | 2 | 0 | 2 | 3 |

**22. Recommended Semester Wise Course Structure / Flow including the Program / Discipline Elective Paths / Option**

| Table 22.1.8 List of MBA (Business Analytics) Courses (Proposed) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **MBA (Business Analytics)** | | | | | | | |
| **S.NO** | **BASKET** | **COURSE CODE** | **SEMESTER I** | **L** | **T** | **P** | **C** |
| 1 | PC | QNT4111 | Applied Business Statistics | 2 | 0 | 2 | 3 |
| 2 | PC | ENG4001 | Global Business Communication | 2 | 0 | 2 | 3 |
| 3 | PC | FIN4111 | Financial Accounting and Reporting | 3 | 1 | 0 | 4 |
| 4 | PC | OBH4111 | Human Behaviour in Organizations | 2 | 1 | 0 | 3 |
| 5 | PC | GMM4111 | Managerial Economics | 2 | 1 | 0 | 3 |
| 6 | PC | OPS4111 | Production Operations and Logistics Management | 2 | 1 | 0 | 3 |
| 7 | PC | MKT4111 | Marketing Management - Theories and Practices | 2 | 1 | 0 | 3 |
| | | | **Total Credits (7 Courses)** | | | | **22** |
| **S.NO** | **BASKET** | **COURSE CODE** | **SEMESTER II** | **L** | **T** | **P** | **C** |
| 1 | PC | QNT4113 | Business Research and Analytics | 3 | 0 | 2 | 4 |
| 2 | PC | QNT4112 | Applied Data Analysis and Visualization | 2 | 0 | 2 | 3 |
| 3 | PC | MKT4112 | Digital Marketing Strategy, Tools and Trends | 2 | 1 | 2 | 4 |
| 4 | PC | FIN4112 | Financial Modelling and Corporate Finance | 2 | 1 | 2 | 4 |
| 5 | PC | OBH4112 | People, Performance and HR Strategy | 2 | 1 | 0 | 3 |
| 6 | STC1 | QNT5121 | Programming for Business Data Analytics | 3 | 0 | 2 | 4 |
| 7 | STC2 | QNT5122 | Data Story Telling | 3 | 0 | 2 | 4 |
| | | | **Total Credits (7 Courses)** | | | | **26** |
| **S.NO** | **BASKET** | **COURSE CODE** | **SEMESTER III** | **L** | **T** | **P** | **C** |
| 1 | PC | GMM4113 | Business Strategy and Corporate Transformation | 2 | 1 | 0 | 3 |
| 2 | PC | GMM4114 | Business Law and Regulatory Compliance | 3 | 0 | 0 | 3 |
| 3 | STC3 | QNT5123 | Predictive Analytics and Business Forecasting | 3 | 0 | 2 | 4 |
| 4 | STC4 | QNT5124 | Data Mining and Intelligent Decision Making | 3 | 0 | 2 | 4 |
| 5 | STE | | STE1 | 2 | 0 | 2 | 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | STE | | STE2 | 2 | 0 | 2 | 3 |
| 7 | STE | | STE3 | 2 | 0 | 2 | 3 |
| 8 | STE | | STE4 | 2 | 0 | 2 | 3 |
| 9 | PR | INT7111 | Summer Internship Project | - | - | - | 4 |
| | | | **Total Credits (9 Courses)** | | | | **30** |
| **S.NO** | **BASKET** | **COURSE CODE** | **SEMESTER IV** | **L** | **T** | **P** | **C** |
| 1 | PC | GMM4115 | Corporate Governance, Ethics and Social Responsibility | 2 | 1 | 0 | 3 |
| 2 | PC | GMM4116 | Entrepreneurship and Innovation Management | 1 | 0 | 4 | 3 |
| 3 | STE | | STE5 | 2 | 0 | 2 | 3 |
| 4 | STE | | STE6 | 2 | 0 | 2 | 3 |
| 5 | STE | | STE7 | 2 | 0 | 2 | 3 |
| 6 | STE | | STE8 | 2 | 0 | 2 | 3 |
| 7 | PR | CRP7111 | Capstone Research Project | - | - | - | 6 |
| | | | **Total Credits (7 Courses)** | | | | **24** |
| **Grand Total** | | | | **102 Credits** | | | |

## 23. Course Catalogue of all Courses Listed including the Courses Offered by other School / Department and Discipline / Program Electives
## Course Catalogues of MBA (Business Analytics) Program

**1st Semester**

<table>
<tr><td>Course Code:<br>QNT4111</td><td colspan="2">Course Title: Applied Business Statistics<br>Type of Course: Program Core</td><td>L – T – P – C</td><td>2– 0 – 2 – 3</td></tr>
<tr><td>Version No.</td><td colspan="4">1.0</td></tr>
<tr><td>Course Pre-requisites</td><td colspan="4">Basic Understanding of Statistics</td></tr>
<tr><td>Anti-requisites</td><td colspan="4">NIL</td></tr>
<tr><td>Course Description</td><td colspan="4">This course offers a foundational understanding of statistics for business applications. Topics include measures of location and variation, correlation and regression, probability concepts, and key probability distributions such as binomial, Poisson, and normal. Emphasis is placed on data analysis, interpretation, and decision-making under uncertainty using real-world business scenarios.</td></tr>
<tr><td>Course Outcomes</td><td colspan="4">On successful completion of this course the students shall be able to:<br>• CO1: Describe the data using descriptive statistics.<br>• CO2: Solve business related problems involving probabilities.<br>• CO3: Solve business related problems using probability distributions.<br>• CO4: Test hypotheses using relevant testing procedures.</td></tr>
<tr><td>Course Objective:</td><td colspan="4">The course aims to:<br>1. Analyze business data using measures of central tendency, dispersion, correlation, and regression.<br>2. Apply probability concepts, including conditional probability and Bayes' theorem, to assess risk and uncertainty.<br>3. Use discrete and continuous probability distributions to support data-driven business decision-making.</td></tr>
<tr><td>Module 1</td><td>Measures of Location and Variation</td><td>Lecture, Tutorial</td><td>Understand</td><td>[L7 + P7 :14 Sessions]</td></tr>
<tr><td colspan="5">Measures of Location and Variation:<br>Measures of Location – mean, median and mode, weighted mean and geometric mean, quartiles and percentiles, (grouped and ungrouped data) their relative merits and demerits. Measures of variation – range, interquartile range for Standard deviation, variance and coefficient of variation (grouped and ungrouped data).<br>Dataset1https://datahub.io/core/pharmaceutical-drug-spending#data-files<br>Dataset2https://datahub.io/core/s-and-p-500-companies-financials<br>Dataset3https://www.kaggle.com/datasets/stealthtechnologies/employee-attrition-dataset<br>Dataset4https://www.kaggle.com/datasets/gagandeep16/car-sales<br>Data in the above data sets will be analyzed using Microsoft Excel/ Excel add-in Megastat</td></tr>
<tr><td>Module 2</td><td>Probability, Random Variable and Probability Distributions:</td><td>Lecture, Tutorial</td><td>Application</td><td>[L8 + P8:16 Sessions]</td></tr>
</table>

Introduction to Probability. Random variable – Discrete and Continuous random variable. Expected value and variance of a discrete random variable. Covariance - Applications. Probability distributions – discrete and continuous. Probability mass function and probability density functions. Discrete distributions – Binomial distribution, Poisson distribution – mean, variance and computation of probabilities. Continuous distributions -normal distribution – properties and computation of probabilities. Introduction to uniform and exponential distributions.

| **Module 3** | **Testing of Hypothesis** | **Lecture, Tutorial** | **Application** | **[L8 + P8:16 Sessions]** |
|---|---|---|---|---|

Concept of population, sample, parameter and statistic. Introduction to sampling distributions. Hypothesis - Null and alternative hypothesis. Type I and Type II errors, level of significance. Test for single mean – (Z and t test). Test for single proportion. Test for two means (Z and t test) paired t test. Test for single and two variances (Chi square and F test) Test for independence of attributes (Chi square test) One way ANOVA ( F test)
Dataset1https://datahub.io/core/pharmaceutical-drug-spending#data-files
Dataset2https://datahub.io/core/s-and-p-500-companies-financials
Dataset3https://www.kaggle.com/datasets/stealthtechnologies/employee-attrition-dataset
Dataset4https://www.kaggle.com/datasets/gagandeep16/car-sales
Data in the above data sets will be analyzed using Microsoft Excel/ Excel add-in Megastat

| **Module 4** | **Correlation and Regression** | **Lecture Method** | **Analysis** | **[L7 + P7:14 Sessions]** |
|---|---|---|---|---|

**Correlation**- definition, scatterplot, Karl Pearson coefficient of correlation, t test for the correlation coefficient, Spearman rank correlation coefficient for data with repeated and non-repeated ranks. **Regression** – Simple linear regression, least squares method, standard error of the estimate, coefficient of determination, t test for regression coefficient, multiple regression.
Dataset1https://datahub.io/core/pharmaceutical-drug-spending#data-files
Dataset2https://datahub.io/core/s-and-p-500-companies-financials
Dataset3https://www.kaggle.com/datasets/stealthtechnologies/employee-attrition-dataset
Dataset4https://www.kaggle.com/datasets/gagandeep16/car-sales
Data in the above data sets will be analyzed using Microsoft Excel/ Excel add-in Megastat

**Targeted Application & Tools that can be used:** NA

**Project work/Assignment:**

- **Self-learning** – The Students will learn about computing quartiles and percentiles for ungrouped data
- **Peer Learning:** Students who have understood the topic will solve the problems on the board thereby giving confidence to others to learn the concepts
- **Case Study**: Students will be given small case lets to solve the problems

- Text Book:
- T1. Anderson D R, Sweeny D J, Williams T A, Camm J D, Cochran J J, Fry M J and Ohlmann JW ( 2019 ), Statistics for Business and Economics,14th edition Cengage learning, New Delhi.

**References:**

- **R1.** Levine D M, Stephan D F, Szabat K A (2016) Statistics for Managers, 7th edition, New Delhi

- **R2.** Ken Black (2010) Business Statistics for Contemporary Decision Making, 6th ed. John Wiley and sons, New Delhi

**Online Resources:**

https://profiletree.com/online-business-statistics/

**Articles:**

- https://ug.its.edu.in/sites/default/files/Business%20Statistics.pdf
- https://www.ijert.org/research/role-of-statistics-on-business-research-IJERTV2IS100524.pdf

**Multimedia (Videos):**

- https://www.youtube.com/watch?v=pdH4YYoOdt4&list=PLEHGYFbPuuMG-0ueLQAgjLTVkLneJpIFJ

**Case Studies:**

- DiGiorno Pizza: Introducing a Frozen Pizza to Compete with Carry-Out

| | |
|---|---|
| **Catalogue prepared by** | Dr. Jayakrishna Udupa |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6th June 2025 |
| Date of Approval by the Academic Council | 26th Academic Council Meeting held on 25th July 2025 |

| **Course Code: ENG4001** | **Course Title: Global Business Communication**<br>**Type of Course: Program Core** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | None | | | | |
| **Anti-requisites** | **Nil** | | | | |
| **Course Description** | This course equips the business graduates/ students with advanced communication competencies necessary for impactful business presence. It focuses on strategic business communication, cultural awareness, active listening, persuasive writing, personal branding, and business presentation skills. Through experiential activities, case-based learning, and digital tools, learners develop the confidence and executive presence to lead in diverse business environments. | | | | |
| **Course Objective** | 1. Integrate DEI principles and intercultural competencies into leadership and organizational communication to build inclusive practice.<br>2. Apply strategic listening, writing, and speaking techniques to produce clear, purpose-fit messages across channels.<br>3. Analyze communication processes and cultural/contextual factors to diagnose barriers and select evidence-based remedies.<br>4. Create a distinctive personal brand and digital presence aligned with career goals using visual and narrative tools.<br>5. Deliver structured, engaging, audience-centred business presentations in in-person and virtual settings. | | | | |

<table>
<tr><td>Course Out Comes</td><td colspan="3">On successful completion of the course the students shall be able to:<ul><li>CO1 Apply cross cultural and DEI frameworks to real workplace scenarios.</li><li>CO2 - Evaluate the clarity, tone, and effectiveness of emails, memos, and minutes, and justify revisions with evidence.</li><li>CO3 - Develop a coherent personal-brand portfolio that includes a clear branding statement and an optimised digital profile.</li><li>CO4 - Deliver audience-specific business presentations with logical structure, sound visual design, and confident Q&A.</li></ul></td></tr>
<tr><td colspan="4">Course Content</td></tr>
<tr><td>Module 1</td><td>Foundations of Business Communication</td><td>Assessment 1 - Quiz</td><td>Analyze<br>15 Sessions (Theory and Practice included)</td></tr>
<tr><td colspan="4">Role of communication in an organization – Components – Process – Direction<br>Diversity, Equity, and Inclusion: Concepts & Challenges - Hofstede’s theory<br>Cultural Capital and Communication Barriers: Language, Accent, Cultural Codes, Diversity and impediments to cross-cultural Communication<br>Media Choices, and social media communication<br><br>Activities:<br>Communication Audit: Analyse communication flow and barriers in organizations using case study.<br>Cultural Simulation Exercise: Role-play scenarios demonstrating communication challenges across different cultural dimensions (Hofstede framework).<br>Media Choice Matrix: Students evaluate different media for business communication situations and justify their choices.</td></tr>
<tr><td>Module 2</td><td>Strategic Listening and Writing for Business Impact</td><td>Assessment 2<br>Business Email, MoM</td><td>Apply<br>12 Sessions (Theory and Practice included)</td></tr>
<tr><td colspan="4">Listening in Business Contexts- As a strategic tool - Emotional Intelligence and Listening<br>Business Writing Essentials - Principles of Effective Writing (Based on Harvard Business Essentials) - Planning and Drafting Techniques - Business emails, memos, circulars and MoM<br>AI and Business Writing<br><br>Activities:<br>Listening Lab: Peer-reviewed listening journals based on simulated team meetings or client interactions.<br>Writing Clinic: Rewrite poorly written emails and memos with justification based on Harvard principles.<br>AI Integration Task: Use AI tools (e.g., Grammarly, ChatGPT, or MS Editor) to revise and optimize business writing, followed by reflection on the role of AI.</td></tr>
</table>

| | | | |
|---|---|---|---|
| **Module 3** | **Personal Brand Development** | Assessment 3 – Personal Branding Portfolio | Apply<br>15 Sessions (Theory and Practice included) |
| Need and Power of Personal Branding - Know Thyself – Crafting Your Brand Core<br>Building a Digital Presence – LinkedIn and Beyond - Managing Your Online Reputation<br>Living the Brand – Resume, Interviews, and Networking<br>Visual Identity and Personal Branding Design<br><br>**Activities**<br>Brand Core Workshop: Create a personal branding statement and vision board.<br>LinkedIn Sprint: Optimize LinkedIn profiles, active engagement and solicit feedback.<br>Mock Networking Event: Simulated interviews and elevator pitches with branding feedback. | | | |
| **Module 4** | Business Presentation | Assessment 4 -Elevator Pitch | Apply<br>18 Sessions (Theory and Practice included) |
| Foundations of Business Presentations - Structuring for Impact – Inclusion of Visual Aids and Slide Design - Handling Q&A and Audience Engagement<br>Types of Business Presentations - Elevator Pitches and Investor Pitches -Sales Presentations and Product Launches, Strategic and Boardroom Presentations - Virtual and Hybrid Presentation Skills<br>**Activities**<br>Mini Project: Students choose a business idea, prepare a pitch deck, and present it.<br>Slide Design Challenge: Redesign poor slides for clarity and visual appeal using Canva or PowerPoint.<br>Presentation Lab: Practice virtual and in-person presentations with video-based peer evaluation. | | | |
| **Targeted Application & Tools for usage**<br>Grammarly**, Ethical use of** ChatGPT, and Microsoft Editor for AI-aided business writing practice)<br>Purdue OWL (Online Writing Lab), Microsoft PowerPoint / Google Slides / Canva | | | |
| **Project work/Assignment: Mention the Type of Project assignment proposed for this course**<br>Quiz, Business Email, MoM, Personal Branding Portfolio, Elevator Pitch Presentation | | | |
| **Textbook:**<br><br>Cardon, P. W. (2021). *Business Communication: Developing Leaders for a Networked World* (4th ed.). McGraw-Hill Education.<br>Lesikar, V. R., & Flatley, M. (2017). *Business Communication: Making Connections in a Digital World* (11th ed.). Tata McGraw Hill.<br>Bovee, C. L., & Thill, J. V. (2018). *Business Communication Today* (14th ed.). Pearson. | | | |
| **References:**<br><br>Hofstede, G. (2011). *Dimensionalizing Cultures: The Hofstede Model in Context*. Online Readings in Psychology and Culture.<br>Goleman, D. (1995). *Emotional Intelligence*. Bantam Books.<br>Harvard Business Review. (n.d.). Articles on *Listening as a Leadership Tool*.<br>Schawbel, D. (2012). *Me 2.0: Build a Powerful Brand to Achieve Career Success*. Kaplan Publishing. | | | |

| | |
|---|---|
| Montoya, P., & Vandehey, T. (2008). *The Brand Called You*. McGraw-Hill.<br>Barrett, D. J. (2021). *Leadership Communication* (5th ed.). McGraw-Hill. | |
| **Catalogue prepared by** | Dr. Pritha Sanyal |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Course Code: FIN4111** | **Course Name: Financial Accounting and Reporting** | **L-T-P-C** | **3** | **1** | **0** | **4** |
| Version No. | 1.0 | | | | | |
| Course Pre-requisites | Basic understanding of business transactions and accounting principles. | | | | | |
| Anti-requisites | NIL | | | | | |
| Course Description | This course introduces the fundamental concepts and processes of accounting, leading to the preparation and interpretation of financial statements. It equips students with tools for cost computation and control through techniques like budgetary control, marginal costing, and variance analysis. By integrating financial, cost, and management accounting, the course develops essential skills for informed managerial decision-making. | | | | | |
| Course Outcomes | **CO1:** Describe the accounting process. *(Understand)*<br>**CO2:** Prepare corporate financial statements. *(Apply)*<br>**CO3:** Analyze financial statements for business decisions. *(Analyze)*<br>**CO4:** Construct budgets for cost control. *(Apply)*<br>**CO5:** Evaluate marginal costing and variance analysis for managerial decisions. *(Analyze)* | | | | | |
| Course Objectives: | The course aims to help students understand the core principles of financial accounting, learn the preparation of financial statements and disclosures, apply accounting standards in real-world contexts, and develop practical skills in Excel and Power BI for effective accounting and reporting. | | | | | |
| Module 1 | **Mechanics of Financial Accounting** | Lecture Method | Understand | 13 Sessions | | |
| Introduction to Accounting, Branches of Accounting, Generally Accepted Accounting Principles, Accounting Entries, Accounting equation, Recording and processing of financial transactions, | | | | | | |

| | | | | |
|---|---|---|---|---|
| Preparation of Trial Balance, Introduction to IFRS ,BRS, Depreciation Accounting– Causes – Methods of Calculating Depreciation – Straight Line Method, Diminishing Balance Method (Use the excel sheet for problem solving).<br>**Practical Problem:-** Accounting Entries ,Ledger, Trial Balance, BRS, Depreciation | | | | |
| Module 2 | **Preparation of Corporate Financial Statements** | Participative Learning | Apply | 13 Sessions |
| Financial Statements, its components, Preparation of Corporate Financial Statements (IND-AS-1) - Statement of Profit and Loss, and Balance sheet with basic adjustments Notes to Accounts, Statement of changes in equity, Statement of Cash Flow by indirect method (IND-AS-7).<br>**Practical Problem:-** Statement of Profit and Loss, and Balance sheet with basic adjustments Notes to Accounts, Cash FlowStatement | | | | |
| Module 3 | **Analysis and interpretation of Financial Statements** | Group Discussion | Analyze | 11 Sessions |
| Horizontal and Vertical Analysis of Balance sheet and income statement ,Ratio analysis- Liquidity, Profitability, Solvency, Turnover and Market test ratios,. (Use the excel sheet for problem solving).<br>**Practical Problem:-** Analysis of Balance sheet and income statement, Common Size, Trend and Comparative Analysis | | | | |
| Module 4 | **Product costing and budgetary control** | Skill based Learning | Apply | 13 Sessions |
| Cost and its classification, preparation of cost sheet in manufacturing industry, budgetary control-preparation of Cash budget and Flexible budget. (Use the excel sheet for problem solving).<br>**Practical Problem:-** Cash budget and Flexible budget | | | | |
| Module 5 | **CVP Analysis** | Experiential Learning | Mini Project | 10 Sessions |
| CVP Analysis – Marginal costing-uses and limitations, Assumption calculation of Contributions, P/V Ratio, Break- Even Point, Margin of Safety, Uses of Marginal Costing in business Decision, Material and Laboure variances. (Use the excel sheet for problem solving).<br>**Practical Problem; -** Marginal costing- Material and Laboure variances | | | | |

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| Project work/ assignment: Prowess database will be used for interpretation of Financial Statement. |
| 1. CA 1 – Quiz<br>2. CA 2 – Assignment<br>3. CA 3 – Presentation<br>4. CA 4 – Case Study |
| **Textbook (T1)**<br>Weygandt, J. J., Kimmel, P. D., & Mitchell, J. E. (2024). Accounting principles (15th ed.). Wiley. https://www.amazon.com/Accounting-Principles-Jerry-J-Weygandt/dp/1394254792<br>**Reference Books**<br>• Dhamija, S. (2023). Financial accounting for managers (4th ed.). Pearson India. https://link.ebrpl.com/portal/2On1dr-Vbrg<br>• Atrill, P., & McLaney, E. J. (n.d.). Accounting and finance for non-specialists (11th ed.). Pearson.<br>• Maheswari, S. N., & Maheswari, A. (n.d.). A textbook of accounting for management (4th ed.). Vikas Publishing House [P] Ltd. |

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| Catalogue prepared by | Dr. Sunil M Rashinkar |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

| **Code: OBH4111** | **Course Title: Human Behaviour in Organizations** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|
| | | **2** | **1** | **0** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | **Nil** | | | | |
| **Anti-requisites** | **Nil** | | | | |
| **Course Description** | This course explores how individuals, teams, and organizational structures shape workplace behavior and performance. Designed for MBA students, it blends theory with practical learning to build critical skills in motivation, perception, leadership, communication, decision-making, and change management. Through case studies, discussions, and projects, students gain practical insights into managing people, fostering collaboration, and applying behavioral principles to real-world business challenges. The course prepares future leaders to navigate complex organizational dynamics with clarity, empathy, and strategic impact. | | | | |
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITY SKILLS** by using **PARTICIPATIVE LEARNING** techniques | | | | |
| **Course Out Comes** | On completion of this course, the student will be able to:<br>**CO1 : Understand** the foundational concepts of individual and group behavior in organizations, including motivation, perception, and attitude formation.<br>**CO2 : Apply** behavioral theories to analyze workplace scenarios and recommend strategies for improving team dynamics, communication, and leadership effectiveness. | | | | |

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| | *CO3 :* ***Analyze*** behavioural challenges in organisations, integrating insights from DM , Conflict Resolution and Change management<br>**CO4 : Evaluate** organizational practices and culture through case studies to assess their impact on employee performance and change readiness and overall organisational effectiveness | | | |
| **Course Content:** | | | | |
| **Module 1** | Introduction to Human Behavior in Organization | | Assessment 1 - Quiz | 8 sessions |
| Topics: Importance of Organization Behavior, Evolution & Historical Developments, Management Roles & Skills, Discipline that contribute to OB. Ethical Behaviors in organizations, Challenges and Opportunities of OB - Workforce Diversity, Inclusion, Globalization, Managing Virtual Workforce<br>Tutorial: Recent Developments in managing diverse workforces / Latest articles or blogs of relevance | | | | |
| **Module 2** | Individual Behaviours-Perceptions, Attitudes Personality & Learning | | Assessment 2 – Assignment | 12 sessions |
| Perception: Meaning, Factors affecting Perceptions, Perception process. Attitudes – Definition, Key elements of attitudes, Attitudes and related concepts (Values, opinion, belief and ideology), Characteristics of attitudes, Attitude formation, Attitude measurement, Changing attitudes.<br>Personality: MBTI, Big Five, 16PF, Type 'A' Type 'B', Eric Fromm, Karen Horney Learning & reinforcement, Classical & Operant conditioning, shaping of behaviour, Defense Mechanism Emotions and Emotional intelligence<br>(Application) | | | | |
| **Module 3** | Motivation Concepts and its Applications | | Assessment 3 – Case Analysis | 12 sessions |
| Motivation: Meaning, Classic & Contemporary Theories of Motivation: Hierarchy of Needs Theory, Two-Factor Theory, McClelland's Theory of Needs, Self-determination Theory, Expectancy theory, Goal Setting Theory; Using Extrinsic Rewards & Intrinsic Rewards to Motivate Employees. (Analyze) | | | | |
| **Module 4** | Group Behaviour and Leadership | | Assessment 4 – Report Writing | 13 sessions |

Group Behavior: Defining and Classifying Groups, Stages of Group Development, Group Decision Making: Groups Versus the Individual, Group Decision-Making Techniques. Differences Between Groups and Teams, Types of Teams, Creating Effective Teams

Leadership: concept, contingency and contemporary theories of leadership. Leadership Prospective: Charismatic leadership, Transactional and Transformational leadership, Servant Leadership. Organization Development and Organization Change (Evaluate)

**Targeted Application & Tools that can be used:**

Role Plays, Psychometric tests and analysis, personality test scales.

**Project work/Assignment: Mention the Type of Project /Assignment proposed for this course**

Project/ Assignment:
(Participative learning)

**Assesment1: Quiz on Relevant concepts of the course**

**Assessment -2**: **Individual Written Assignment**

Review the given article mentioned in the link below and submit assignment. (Kindly note: Student should visit PU library and access the online resources for the same and incorporate the assignment as well as attach the photo of log in and log out in person in the end of the assignment file.)

**Assesment-3**: **Case study**: Analyse the case given in link below and identify issue in the given situation and provide possible solutions. (Student needs to visit PU library to access the online Resources to access the case study provided and attach the photo of Login and Logout time in the end of the assignment)

**Assessment -4: Report Writing:** Identify any one MNC of IT sector and bring out the various activities and strategies followed in that organization with reference to Team Work Culture and submit a report. (Kindly note: Student should visit PU library and access the online resources for the same and incorporate the assignment as well as attach the photo of log in and log out in person in the end of the assignment file.)

**Text Book :** T1- *Robbins,* S. P., & Judge, T. A. (2025). *Organizational behavior* (19th ed.). Pearson Education. VitalSource

**References :**

- R1 – *Luthans*, F., Luthans, B. C., & Luthans, K. W. (2021). *Organizational behavior: An evidence-based approach* (14th ed.). Information Age Publishing. VitalSource.
- R2- Sanket Sunand Dash (2021). Organizational Behavior, Thirteenth Edition, Wlley India Pvt. Ltd.

**Research and Articles:**

**Working with Millennials: Using Emotional Intelligence and Strategic Compassion to Motivate the Next Generation of Leaders**

**1.You don't have to be Expert: Increase productivity by increasing EQ**

https://research-ebsco-com-presiuniv.knimbus.com/c/n5guci/search/details/hgnfiabbuj?db=e000xww

2. People are your Resources: Focus on others to get what you want

https://research-ebsco-com-presiuniv.knimbus.com/c/n5guci/search/details/hgnfiabbuj?db=e000xww

**Case studies:**

1. Influence of Manager's Leadership Style on Employees' Performance

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| https://www.researchgate.net/publication/374741033_CASE_STUDIES_IN_ORGANIZATIONAL_BEHAVIOUR<br><br>2. Influence of Leadership among Problematic Workers in Oil Palm Plantation Sector<br><br>https://www.researchgate.net/publication/374741033_CASE_STUDIES_IN_ORGANIZATIONAL_BEHAVIOUR |

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|---|---|
| **Catalogue prepared by** | Dr. B. Anupama |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

| **Course Code: GMM4111** | **Course Title: Managerial Economics** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|
| | | 2 | 1 | 0 | 3 |
| **Version No.** | 1 | | | | |
| **Course Pre-requisites** | **Nil** | | | | |
| **Anti-requisites** | **Nil** | | | | |
| **Course Description** | This course explores the application of economic principles to managerial decision-making in a business context. By blending microeconomic theory with practical tools, students learn how to analyze demand, production, costs, pricing, and market structures. The course also addresses the influence of macroeconomic conditions, risk, and government policies on managerial decisions. Through case studies and applications, students gain the ability to apply economic reasoning to real-world business challenges. | | | | |
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITY SKILLS** by using **PARTICIPATIVE LEARNING** techniques | | | | |
| **Course Out Comes** | On completion of this course, the student will be able to: | | | | |
| | **CO1:** Understand and explain the principles of managerial economics and their application in business decision-making. (Understand) | | | | |
| | **CO2:** Apply demand and supply analysis, forecasting methods, and elasticity concepts to solve managerial problems. (Apply) | | | | |
| | **CO3:** Analyze production and cost relationships to recommend strategies for efficiency and profitability. (Analyze) | | | | |
| | **CO4:** Evaluate pricing and output decisions across different market structures, considering risks, uncertainties, and government interventions. (Evaluate) | | | | |
| **Course Content:** | | | | | |

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| **Module 1** | **Introduction to Managerial Economics** | Assessment 1 - Quiz | 10 sessions |
| Topics: Nature, scope, and significance of managerial economics in decision-making. Relationship of managerial economics with microeconomics, macroeconomics, and functional areas of management. Fundamental economic concepts: scarcity, choice, opportunity cost, marginal analysis, and time perspective. Role of managerial economics in modern business strategy. Factors of Production and Circular flow of Economy | | | |
| **Production function:** short-run and long-run. Law of variable proportions returns to scale, and isoquants. Cost concepts: fixed, variable, total, average, marginal, opportunity costs. Short-run and long-run cost curves, learning curve, economies and diseconomies of scale. Applications of cost analysis in managerial decision-making (break-even analysis, make-or-buy decisions). | | | |
| Tutorial: Recent Developments in managing diverse workforces / Latest articles or blogs of relevance | | | |
| **Module 2** | **Demand and supply Forecasting** | Assessment 2 – Assignment | 15 sessions |
| **Demand analysis:** law of demand, determinants of demand, exceptions to the law of demand. Elasticity of demand: price, income, and cross elasticity – managerial uses and applications. **Demand forecasting:** qualitative and quantitative techniques (survey methods, moving averages, regression analysis, econometric models). Business applications of demand forecasting: production planning, pricing, and marketing strategies. Case study discussions on forecasting errors and their managerial implications.<br>**Supply Analysis:** Law of Supply – Price elasticity of supply<br>**Price Equilibrium** | | | |
| **Module 3** | **Market Structures and Pricing Decisions** | Assessment 3 – Project/Report Writing | 12 sessions |
| **Market Structures and characteristics**<br>**Price-output decisions under different market structures:** Perfect competition – equilibrium in short run and long run. Monopoly – price discrimination, profit maximization. Monopolistic competition – product differentiation, selling costs. Oligopoly – collusive and non-collusive models (Cournot, Bertrand, Kinked Demand Curve).<br>**Pricing practices:** cost-plus pricing, transfer pricing, penetration pricing, skimming strategy, pricing in the digital economy. Government intervention and regulation in pricing and competition. Decision-making under risk and uncertainty: expected value analysis, decision trees. | | | |
| **Module 3** | **Macroeconomics** | Assessment 4 –Scenario Analysis Assignment | 08 sessions |
| Macroeconomic issues and concepts – The Circular Flow of Income – Concepts of National Income and its Measurement | | | |

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| Business Cycle Indicators – Leading – Lagging – Coincident Indicators<br>**Output & Income:** Income generated from this production, including wages, salaries, profits, and rent.<br>**Employment & Unemployment:** factors that influence unemployment rates, such as labor market dynamics, economic growth, and government policies<br>**Inflation & Deflation:** meaning, Types - Consumer Price Index – Wholesale Price Index – Index of Industrial Production (IIP), impact on purchasing power and economic stability.<br>**National Income Estimation process:** Gross National Savings – Gross Capital Formation– Gross domestic Product – Gross National Income – Gross National Product – Net Domestic Product- Net Domestic Income – Net National Income – National Income |
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| **Targeted Application & Tools that can be used:** |
| Case Study Analysis – Application of demand forecasting, pricing strategies, and production decisions in real companies. |
| Quantitative Tools – Regression analysis, break-even analysis, cost-volume-profit analysis, decision trees, and elasticity measurement. |
| Forecasting Software / Tools – Excel, SPSS, R, or other statistical packages for demand forecasting and data analysis. |
| Simulation Exercises – Market structure simulations (monopoly, oligopoly pricing decisions) to understand competitive behavior. |
| Business Reports & Presentations – Students prepare decision-focused reports analyzing cost structures, pricing policies, or market entry strategies. |
| **Project work/Assignment: Mention the Type of Project /Assignment proposed for this course** |
| Project/ Assignment: |
| (Participative learning) |
| 1. Assessment 1 – Quiz (Module 1: Introduction to Managerial Economics) |
| Ø Short quiz on core concepts: scarcity, opportunity cost, marginal analysis, and role of managerial economics in decision-making. |
| Ø Objective: Test foundational understanding. |
| 2. Assessment 2 – Assignment (Module 2: Demand and Forecasting) |
| Ø Assignment: Select a product/service and prepare a demand forecast using secondary data. Apply elasticity concepts and discuss managerial implications. |
| Ø Objective: Apply demand analysis tools to a practical scenario. |
| 3. Assessment 3 – Case Study (Module 3: Production and Cost Analysis) |
| Ø Case study: Analyze cost structures of a manufacturing/service firm. Identify fixed vs. variable costs, apply break-even analysis, and suggest ways to reduce costs. |
| Ø Objective: Strengthen decision-making based on production and cost analysis. |
| 4. Assessment 4 – Project/Report Writing (Module 4: Market Structures and Pricing Decisions) |
| Ø Project: Study an industry (e.g., telecom, airlines, e-commerce) and analyze its market structure. Evaluate pricing strategies used by leading firms and recommend an optimal strategy. |
| Ø Objective: Integrate concepts of market structure, pricing, and government policies into a real-world context. |

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| **Text Books:** |
| **T1** – Paul G. Keat & Philip K. Y. Young 2022). *Managerial Economics: Economic Tools for Business Decisions* (9th ed.). Pearson Education. |
| **T2** – Varshney R. L. & Maheshwari K. L. (2021). *Managerial Economics*. Sultan Chand & Sons. |
| **References :** |
| 1. R1 – Luthans, F., Luthans, B. C., & Luthans, K. W. (2021). Organizational behavior: An evidence-based approach (14th ed.). Information Age Publishing. VitalSource. |
| 2. R2- Sanket Sunand Dash (2021). Organizational Behavior, Thirteenth Edition, Wlley India Pvt. Ltd. |
| |
| **Research and Articles:** |
| 1. "The elasticity of demand and its role in consumer behaviour determination: A comparative analysis of Europe and the USA". *Scientific Bulletin of Mukachevo State University, Series 'Economics' (2024)* |
| Examines how price elasticity varies across products like oil, milk, and chicken in Europe and the U.S., offering insights into consumer behavior and managerial pricing decisions. |
| Access via ResearchGate: ResearchGate |
| 2. "The Impact of Big Data on Economic Forecasting and Policy Making" *EAJournals.org, 2022* |
| Explores how big data enhances forecasting accuracy and supports strategic decision-making—essential for Module 2 on demand forecasting. |
| Read more: EA Journals |
| 3. "Sustainable Competitive Advantage in Emerging Markets: Innovations and Strategies" |
| *Gurpreet Singh & Sandeep Vij (2020).* Discusses tailored strategies enabling firms in emerging markets to maintain a competitive edge—helpful for understanding cost leadership and market positioning. |
| Access via ResearchGate: ResearchGate |
| 4. "A Step-by-Step Guide to Real-Time Pricing", *Harvard Business Review, November–December 2023* |
| Provides actionable insights into implementing AI-powered pricing models—highly relevant to Module 4's focus on pricing strategies. |
| Read the article: Harvard Business Review |
| 5. "The Future of Economic Forecasting with AI and Big Data Integration" *Charles James, ResearchGate (2024).* Reviews how AI and unstructured data are revolutionizing forecasting methods—directly applicable to modern demand forecasting techniques. |
| Access via ResearchGate: ResearchGate |

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| **Catalogue prepared by** | Dr. Bipasha Maity |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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| **Course Code:** | | **L** | **T** | **P** | **C** |

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| **QPS4111** | **Course Title: Production Operations and Logistics Management** | **2** | **1** | **0** | **3** |
| **Version No.** | 2.0 | | | | |
| **Course Pre-requisites** | **Nil** | | | | |
| **Anti-requisites** | **Nil** | | | | |
| **Course Description** | This course provides an in-depth understanding of production operations and logistics management in business environments. Students will explore core operational processes, supply chain strategies, inventory management, and logistics optimization to enhance efficiency and profitability. Through real-world case studies and interactive learning methods, students will gain practical insights into managing production systems and designing effective logistics solutions, preparing them for strategic roles in operations management. | | | | |
| **Course Objective** | This course is designed for **SKILL DEVELOPMENT** of the learner by using **PROBLEM SOLVING** techniques. | | | | |
| **Course Out Comes** | Upon completing this course, students will be able to:<br>1. **Analyze** production and logistics challenges using key operational theories.<br>2. **Evaluate** supply chain performance with industry-specific metrics.<br>**3. Develop** efficient logistics solutions that optimize cost and resources.<br>**4. Apply** problem-solving strategies to improve production workflows. | | | | |
| **Course Content:** | | | | | |
| **Module 1** | **Introduction to Production Operations** | | Assessment 1 - Quiz | 11 Hours | |
| This module lays the foundation for understanding production systems and operations management. Students will explore:<br>• Types of Production Systems – Job production, batch production, mass production, and continuous production.<br>• Operations Strategy – Aligning production processes with business goals.<br>• Productivity and Efficiency – Techniques to measure and improve performance.<br>• Technology in Operations – Role of automation, robotics, and AI in modern production. | | | | | |
| **Module 2** | **Supply Chain and Inventory Management** | | Assessment 2 – Case Study | 11 Hours | |
| This module delves into supply chain dynamics and inventory control methods to optimize operations. Topics include:<br>- Demand Forecasting – Methods like time series analysis and regression models.<br>- Inventory Management – Economic Order Quantity (EOQ), Just-In-Time (JIT), and Vendor-Managed Inventory (VMI).<br>- Lean & Agile Supply Chains – Strategies for minimizing waste and improving responsiveness.<br>- Supply Chain Risk Management – Handling disruptions and building resilient networks. | | | | | |
| **Module 3** | **Logistics and Distribution Strategies** | | Assessment 3 – Case Analysis | 11 Hours | |
| In this module, students will explore efficient logistics models to ensure seamless flow of goods and services. Key areas include:<br>- Transportation Modes – Road, rail, air, and sea; comparative advantages.<br>- Network Optimization – Designing distribution channels for cost and service efficiency.<br>- Warehouse Management – Layout design, automation, and performance metrics.<br>- Technological Advancements – Blockchain, IoT, and AI-driven logistics solutions. | | | | | |

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| **Module 4** | **Optimization in Production and Logistics** | | Assessment 4 – Mini Project<br>Students will work on a mini-project, applying optimization techniques to solve a production or logistics problem in a real-world scenario. | 12 Hours |

This module focuses on improving operations using analytical tools and emerging trends. Topics covered:

- Process Improvement Methodologies – Six Sigma, Kaizen, and Total Quality Management (TQM).
- Data-Driven Decision Making – Using analytics for production planning.
- Sustainability in Logistics – Green supply chain initiatives and carbon footprint reduction.
- Future of Operations Management – AI, predictive modelling, and smart factories.

**Targeted Application & Tools that can be used:**

Project work/Assignment: Students will develop a logistics optimization model for a real-world business case, integrating production efficiency techniques

**Project work/Assignment: Mention the Type of Project /Assignment proposed for this course**

**Web Resources:**

- Supply Chain Digital: www.supplychaindigital.com
- Logistics Management Magazine: www.logisticsmgmt.com
- MIT Supply Chain Research: www.mit.edu/supplychain

**Sample Data Set:**

Real-time industry data on supply chain optimization and logistics modelling will be provided for case study analysis.

- **Text Book:** Chopra, S., & Meindl, P. (2021). *Supply Chain Management: Strategy, Planning, and Operations*. Pearson.

**References:**


- Russell, R.S., & Taylor, B.W. (2020). *Operations Management: Creating Value Along the Supply Chain*. Wiley.
- Christopher, M. (2016). *Logistics and Supply Chain Management*. Pearson.


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| **Catalogue prepared by** | Shivaprasad S |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

| **Course Code: MKT4111** | **Course Title: Marketing Management - Theories and Practices – Theories & Practices** | **L** | **T** | **P** | **C** |
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| | | **2** | **1** | **0** | **3** |
| **Version No.** | 1.0 | | | | |

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| **Course Pre-requisites** | **Nil** | | | |
| **Anti-requisites** | **Nil** | | | |
| **Course Description** | This course intends to provide the student with necessary knowledge and skills to excel in the field of marketing. This course explores the five philosophies applied in this digital era: along with the marketing mix - product development, pricing strategies, promotion, and distribution channels. The theoretical concepts are applied to understand and solve the marketing challenges through a combination of lectures, case studies, and hands-on exercises is expected to provide students the essential skills in marketing. On completion of this course students would have acquired the capacity to critically think, identify marketing issues, draft marketing plans, draw data-driven decisions. | | | |
| **Course Objective** | This course is designed to improve the learners Skill Development by using Participation techniques. | | | |
| **Course Out Comes** | **On successful completion of the course the students shall be able to:**<br>**CO 1: Illustrate the i**mportance of Marketing management and consumer behaviour for Segmentation, Targeting & Positioning decisions. (Understanding)<br>**CO 2: Develop** Product launching strategies. (Applying)<br>**CO 3: Examine** the significance of appropriate pricing & distribution decisions for product success. (Analyzing)<br>**CO 4: Evaluate** the right use of promotion & technology for realizing a positive ROI. (Evaluating) | | | |
| **Course Content:** | | | | |
| **Module 1** | **Concepts of Marketing** | Assignment using E Library (Participative Learning) | Assessment 1 - Quiz | 12 Sessions |
| **Topics:** Concept of Marketing, Needs, Wants and Demand, Nature & Importance of Marketing, 5 Philosophies of Marketing Management , Marketing Mix, Marketing Environment – Macro and Micro Environment.<br>Factors influencing Consumer Behaviour, Consumer Buying Decision Process, Market Segmentation and Bases of segmentation, Targeting Strategies, Concept of Positioning. | | | | |
| **Module 2** | **Product** | Assignment (Participative Learning) | Assessment 2 – Assignment | 09 Sessions |
| **Topics:** Product – Meaning, Product Mix – Product Line, Length and Depth, Product Line Analysis & Decisions, New Product Development - Product Life Cycle (PLC) – PLC Strategies, Product vs. Brand, Benefits of Branding, Brand Equity, Fifth 'P' - Packaging and Labelling. | | | | |
| **Module 3** | **Price & Place** | Case study (Participative Learning) | Assessment 3 – | 12 Sessions |

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| | | | Case Analysis | |
| **Topics:**<br>Pricing – Importance of Pricing, Setting the Price, Pricing Objectives, and Steps in Pricing, Types of Pricing. Practice exercises in pricing.<br>Place - Marketing Channels and their roles, Functions of a channel partner, Types of channels, Levels, Channel Design decisions, Channel Conflict: Reasons and resolution. | | | | |
| **Module 4** | **Promotion & Technology** | Assignment (Participative Learning) | Assessment 4 – Mini Project | 12 Sessions |
| **Topics:**<br>Promotion Mix - Advertising, Sales Promotion, Events & Experiences, Direct Marketing and Public Relations & Publicity, Personal Selling – Pros & Cons. Integrated Marketing Communications (IMC) – Traditional & Digital media, social media - Steps in Promotional Planning - Media Planning, Budgeting, Ad Campaign development.<br>Managing consumer journey & experiences using technology – concepts & use cases. | | | | |
| **Project work/Assignment:**<br>Module 1 Sample Assignment 1: Project Work: Collect Advertisements (from Newspapers) pertaining to the various forms of Segmentation, classify them, and make a presentation, with appropriate justification.<br>Module 2 -Sample Assignment 2: Identify 5 products / brands which are in the different Life Cycle Stages of PLC and suggest appropriate Marketing strategies for them.<br>Module 3 - Sample Assignment: Analyze the difference in Distribution channels - FMCG versus / Consumer durables / Services<br>Module 4 - Sample Assignment : Identify the Digital and Social Media Marketing strategies adopted by any company of your choice. | | | | |
| **Web Resources:**<br>(**Kindly note: Student should visit PU library and access the online resources for the same and incorporate in the assignments)**<br><br>**Research Articles in Journals**<br>• The Impact of Market Environments on Marketing Relationships https://www.researchgate.net/publication/257206982_The_Impact_of_Market_Environments_on_Marketing_Relationships<br><br>• PLC strategies of Amul https://mentormecareers.com/product-life-cycle-of-amul/?srsltid=AfmBOopV3fmKT77X3eO6bsuYHJ9jNieKliMlRYM1Rhg5hwqT1JFrxRYg<br><br>• Ranjan Bandyopadhyay, Bipithalal Balakrishnan Nair, "Marketing Kerala in India as God's Own Country! for tourists' spiritual transformation, rejuvenation and well-being", Journal of Destination Marketing & Management, Volume 14. https://www.sciencedirect.com/science/article/abs/pii/S2212571X18303779<br><br>• HUL Integrated Annual Report 2024-25 | | | | |

https://www.hul.co.in/files/hul-integrated-annual-report-2024-25.pdf

**Case Studies:**

- The Coca-Cola brand positioning strategy, segmentation and targeting

  https://fabrikbrands.com/branding-matters/brand-strategy/coca-cola-brand-positioning-strategy-segmentation-and-targeting/
- Nestle' Maggi: Pricing and repositioning a recalled product
  https://www.scribd.com/document/406890984/Group-6-Nestle-s-Maggi-Pricing-repositioning-a-recalled-product-docx
- Tourism Promotion through the Internet (Websites): (Jordan as a Case Study)
  https://www.researchgate.net/publication/228414318_Tourism_Promotion_through_the_Internet_Websites_Jordan_as_a_Case_Study
- Cybermediation in Auto Distribution: Channel Dynamics and Conflicts
  https://onlinelibrary.wiley.com/doi/full/10.1111/j.1083-6101.2000.tb00347.x
- Understanding Customer Experience Throughout the Customer Journey

  https://www.jstor.org/stable/44134974?refreqid=fastly-default%3Aafda1f1b4caed3bf330641c66c9d6444&seq=3

**Videos:**

- Marketing Management – Core concepts
  https://youtu.be/65MQnEMf-uI?si=go-RM8wy59QTba0T
- Understanding the Marketing Mix
  https://www.youtube.com/watch?v=d0NMSqeKpVs
- Product Life Cycle
  https://www.youtube.com/watch?v=GjQRON8LF9g

**Text Book**

**T1:** Philip Kotler, Kevin Lane Keller, Alexander Chernav. (2022). Marketing Management. Pearson Education. 16th edition.

**References**

**R1**: David A. Aaker and Christine Moorman. (2023). Strategic Market Management. Wiley Publisher. 12th edition.

**R2:** Tapan K. Panda. (2022). Marketing Management: Text and Cases. Taxmann Publications. 3rd Edition.

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|---|---|
| **Catalogue prepared by** | Dr. Mohamad Imrozuddin |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |

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| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

**2nd Semester**

| **Course Code:** QNT4113 | **Course Title: Business Research and Analytics**<br>**Type of Course: Program Core** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|
| | | **3** | **0** | **2** | **4** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course enables students to make effective managerial decisions through the application of business analytics using the R programming language. Emphasis is placed on data exploration, statistical analysis, predictive modeling, and data visualization. Through practical application and real-world datasets, students will learn to draw insights from data to support strategic and operational decisions. | | | | |
| **Course Outcomes** | **CO1** | Understand the importance of analytics and R programming in managerial decision-making. | | | |
| | **CO2** | Apply R programming for descriptive and inferential statistical analysis on business datasets. | | | |
| | **CO3** | Develop predictive models using regression, classification, and time series forecasting in R. | | | |
| | **CO4** | Visualize data and communicate insights effectively using R's graphical capabilities and dashboards. | | | |
| **Course Objective** | This course aims to enhance learners' **employability skills** through **experiential and participative learning**, enabling them to communicate data insights effectively to varied stakeholders. | | | | |

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| **Module 1** | **Introduction to R and Business Analytics** | Participative Learning (Quiz) | **[L12 + P7 :19 Sessions]** |
| **Topics:** Role of analytics in decision making, Introduction to R and RStudio, basic data structures (vectors, lists, data frames), importing/exporting data, basic functions and packages. | | | |
| **Module 2** | **Descriptive and Diagnostic Analytics in R** | Hands-on Practical (Lab)/Assignment | **[L12 + P7 :19 Sessions]** |
| **Topics**: Summary statistics, data wrangling using dplyr, data cleaning, exploratory data analysis, Use case: Customer segmentation overview | | | |
| **Module 3** | **Predictive Analytics for Decision Making** | Participative Learning (Case-based) | **[L12 + P8 :20 Sessions]** |
| **Topics:** Simple and multiple linear regression, logistic regression, model evaluation (R-squared, confusion matrix), Use case: Predicting sales or customer churn. | | | |
| **Module 4** | **Forecasting and Time Series Analysis** | Mini Project (Group Work) | **[L9 + P8 :17 Sessions]** |
| **Topics:** Time series components, ARIMA modeling using forecast package, trend and seasonality analysis, Use case: Forecasting demand for inventory management. Visualization with ggplot2. | | | |
| **Targeted Application & Tools that can be used:** R & RStudio | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 – Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work - Interactive dashboard presentation | | | |
| **Text Book:**<br>**T1:** Wickham, H., & Grolemund, G. (2017). *R for Data Science*. O'Reilly Media | | | |
| **Reference Books:**<br>R1: James, G., Witten, D., Hastie, T., & Tibshirani, R. (2021). *An Introduction to Statistical Learning with Applications in R*<br>R2: Shmueli, G., Bruce, P., Gedeck, P., & Patel, N. (2020). *Data Mining for Business Analytics Using R*<br>R3: Kabacoff, R. (2020). *R in Action: Data Analysis and Graphics with R*. Manning Publications | | | |

**Online Resources:**

**https://presiuniv.knimbus.com/user#/home**

https://learn.microsoft.com/en-us/power-bi/

**https://www.tidyverse.org**

**https://r4ds.had.co.nz**

**https://www.datacamp.com**

**https://www.kaggle.com**

**Research Articles:**

Articles on analytics application in marketing, HR, and operations decision making will be shared via institutional repository

**Multimedia (Videos):**

DataCamp R courses

YouTube channels: StatQuest with Josh Starmer, Data School

**Case Studies:**

- Flipkart – Predicting return rates using logistic regression
- ICICI Bank – Risk analytics using classification models
- Swiggy – Forecasting demand using time series in R

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| **Catalogue prepared by** | Dr. Mary Jeyanti Prem |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|
| **Course Code: QNT4112** | **Course Title: Applied Data Analysis and Visualization** | **L – T – P – C** | **2– 0 – 2 – 3** |
| **Version No.** | 1.0 | | |
| **Course Pre-requisites** | NIL | | |
| **Course Description** | This course introduces students to applied data analysis using spreadsheets and visualization tools to support managerial decision-making. It emphasizes the use of formulae, functions, pivot tables, and dashboards to analyze and interpret business data. Students will learn to apply statistical and financial techniques for forecasting, reporting, and optimization. The course integrates practical lab exercises with real-world datasets to build problem-solving skills. By the end, students will be able to create effective visualizations and analytical models for business impact. | | |

<table>
<tr><td>Course Outcomes</td><td colspan="4">On successful completion of this course the students shall be able to:<ul><li>CO1: Apply spreadsheet operations to manage, format, and organize business datasets for effective analysis.</li><li>CO2: Analyze business problems using formulas and functions to derive insights from quantitative and qualitative data.</li><li>CO3: Evaluate data through advanced charts, pivot tables, and dashboards to support informed managerial decision-making.</li><li>CO4: Create business solutions by integrating advanced Excel tools (Power Query, PowerPivot, VBA) to design models for forecasting and analytics applications.</li></ul></td></tr>
<tr><td>Course Objective:</td><td colspan="4">To develop students' ability to apply data analysis and visualization techniques using spreadsheets and advanced Excel tools for effective problem-solving and data-driven business decision-making.</td></tr>
<tr><td>Module 1</td><td>Introduction to Data Analysis and Spreadsheets</td><td>Lecture, Lab</td><td>Apply</td><td>[5 Lecture + 5 Lab Sessions]</td></tr>
<tr><td colspan="5">Introduction to data analysis, introduction to spreadsheets and excel, entering and editing worksheet data, performing basic worksheet operations, working with excel ranges and tables, formatting worksheets.</td></tr>
<tr><td>Module 2</td><td>Formulae and Functions</td><td>Lecture, Lab</td><td>Analyze</td><td>[5 Lecture + 5 Lab Sessions ]</td></tr>
<tr><td colspan="5">Introducing formulae and functions, formulae for mathematical and text operations, formulae for handling dates and time, formulae for matching and lookup, formulae for statistical analysis, formulae for financial analysis, array formulas, error-free formulae.</td></tr>
<tr><td>Module 3</td><td>Data Visualization, Management and Analysis</td><td>Lecture, Lab</td><td>Evaluate</td><td>[5 Lecture + 5 Lab Sessions ]</td></tr>
<tr><td colspan="5">Getting started with excel charts, creating sparkline graphics, advanced charting techniques, dashboarding and implementing excel dashboarding best practices, introducing pivot tables and pivot charts, analyzing data with pivot tables, analyzing data using goal seeking and solver, analyzing data with the analysis tool pack.</td></tr>
<tr><td>Module 4</td><td>Applying analytics to achieve Business impact</td><td>Lecture, Lab</td><td>Create</td><td>[6 Lecture + 9 Lab Sessions ]</td></tr>
<tr><td colspan="5">Introduction to PowerPivot and power query, business application of power pivot and query, automating excel using VBA, business application of VBA, business data management applications, customer analytics applications, demand forecasting applications, capstone project</td></tr>
<tr><td colspan="5">Targeted Application & Tools that can be used: Microsoft Excel</td></tr>
<tr><td colspan="5">Project work/Assignment:</td></tr>
<tr><td colspan="5"><ul><li>Quiz (Module 1: Introduction to Data Analysis and Spreadsheets)<br>Students will take a quiz on Excel basics, worksheet operations, ranges, and data formatting.</li><li>Individual Assignment (Module 2: Formulae and Functions)<br>Apply formulas and functions (mathematical, text, statistical, lookup, financial) on a given dataset to perform meaningful analysis and submit a written assignment with results.</li></ul></td></tr>
</table>

- **Case Study (Module 3: Data Visualization, Management and Analysis)**
  Analyze a business case dataset using PivotTables, charts, and dashboards. Identify patterns, trends, and provide managerial insights through visualization.
- **Project / Report Writing (Module 4: Applying Analytics to Achieve Business Impact)**
  Capstone group project: Develop an Excel dashboard integrating Power Query, PowerPivot, Solver, or VBA. Submit a report demonstrating how the solution can support decision-making in business areas such as sales, HR, marketing, or finance.

- Text Books:

- T1. Mount, G. (2024). *Modern data analytics in Excel*. Wiley.
- T2 Fortino, A. (2024). *Data visualization for business decisions*. Packt Publishing.

**References:**


1. **R1:** McKinney, W. (2022). *Python for data analysis: Data wrangling with pandas, NumPy, and Jupyter* (3rd ed.). O'Reilly Media.
2. **R2:** Gibson, G. (2024). *Essential data science and analytics with R and Python.* Springer.
3. **R3:** Arab, I. (2024). *Marketing analytics dashboards design*. Routledge.
4. **R4:** Castro, L. N. de. (2025). *Exploratory data analysis: Descriptive analysis, visualization, and dashboard design,* Taylor & Francis.
5. Baley, I., & Veldkamp, L. (2025). *The data economy: Tools and applications*. Princeton University Press.


**Web pages**

1. https://sites.google.com/view/narayanasrikanthreddy/home/student-home-page/mba-1st-sem
2. https://support.microsoft.com/en-gb/office/keyboard-shortcuts-in-excel-1798d9d5-842a-42b8-9c99-9b7213f0040f
3. https://www.linkedin.com/pulse/data-analysis-project-excel-dashboard-anusha-srivastava

**PU library E –resource**

https://www-sciencedirect-com-presiuniv.knimbus.com/journal/journal-of-computational-mathematics-and-data-science

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|---|---|
| **Catalogue prepared by** | **Dr. Varalakshmi Dandu** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|---|
| **Course Code: MKT4112** | **Course Title: Digital Marketing Strategy, Tools and Trends**<br>**Type of Course: Program Core** | **L- T-P- C** | 2 | 1 | 2 | 4 |
| **Version No.** | 1.0 | | | | | |
| **Course Pre-requisites** | | | | | | |
| **Anti-requisites** | NIL | | | | | |
| **Course Description** | This course provides an advanced, hands-on introduction to the field of digital marketing. Students will learn to build digital infrastructure (web and social), plan and implement paid and owned media strategies, and apply contemporary tools like mobile, email, and AI-based marketing. Designed with a progressive structure, learners begin by creating a brand website, then enhance discoverability using SEO and organic tools, followed by campaign execution via paid media and finally, integrating cutting-edge direct and AI-led marketing innovations. Excludes analytics to focus purely on execution and creative planning. | | | | | |
| **Course Outcomes** | On successful completion of this course the students shall be able to:<br>**CO1) Create** a functional brand website and social presence aligned with digital best practices.<br>**CO2) Apply** SEO, AEO, and content strategies to enhance online discoverability.<br>**CO3) Analyze** different paid media platforms and **design** effective cross-channel ad campaigns.<br>**CO4) Evaluate** mobile, email, affiliate, and AI-based tools into a unified marketing strategy. | | | | | |
| **Course Objective:** | The course aims at **SKILL DEVELOPMENT** with respect to Digital Marketing Strategies with **PARTICIPATIVE** learning activities. | | | | | |
| **Module 1** | **Building Digital Infrastructure** | Assignment (Participative Learning) | Case Study | **8S + 4T + 6 P** | | |
| **Topics**: Introduction to Digital Presence, Web Design Basics: Structure, UX, and Branding, Domain, Hosting, CMS (WordPress or No-Code), Page Types & Wireframes, Integrating Forms and CTAs, | | | | | | |

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| Setting up Business Social Media Pages, Linking Web + Social Ecosystem, Website Legal Essentials: Cookies, Privacy. | | | | |
| **Module 2** | **Organic Visibility & Content Strategy** | Assignment (Participative Learning) | Article | **8S + 4T + 8 P** |
| **Topics**:SEO Fundamentals: On-page, Off-page, Technical, Local and International, Answer Engine Optimization (AEO), Generative Engine Optimization (GEO), Blogging Strategy and Content Calendar, Keyword Planning Tools, Image & Meta Optimization, Organic Social Media (LinkedIn, Instagram, YouTube and Facebook), Influencer & Community Engagement, ORM (Online Reputation Management). | | | | |
| **Module 3** | **Paid Media Planning & Execution** | Assignment using E Library (Participative Learning) | Analyze and evaluate a brand's organic and paid digital strategies. | **8S + 4T + 8 P** |
| **Topics**: Display Ads (Google Display Network, Banners, Native), Google Search Ads: Structure, Keywords, Ad Copy, Paid Social Media Ads: Meta, LinkedIn, X, Budgeting, Bidding & Scheduling, Campaign Testing (A/B Creatives), Targeting Methods: Contextual, Behavioral, Programmatic Ad Basics, Creative Briefing & Visual Design, Integrated Media Plan Submission. | | | | |
| **Module 4** | **Direct & AI-Driven Marketing** | Project (Experiential Learning) | Design and execute a multi-platform campaign. | **8S + 3T + 8 P** |
| **Topics**: Email Marketing: Segmentation, Automation, Mobile Marketing: SMS, In-App, Geo-targeting, Affiliate Marketing Ecosystem, AI in Marketing: Chatbots, Predictive Content, Personalization, Voice Assistants & WhatsApp Business, AR/VR Marketing Trends, Building Drip Campaigns, Building Chatbot Journeys (No Code), Final Campaign Showcase & Reflection. | | | | |
| **Targeted Application & Tools that can be used:** Social Media Platforms - Facebook, Instagram, LinkedIn, Twitter, YouTube. Tools – Semrush, Aharefs, Sprout Social, Buffer, Mailchimp, Brevo. | | | | |
| **Assignment:** | | | | |

Assignment 1: Build Your Digital Brand. (Individual) (A functional 5-page website and Link social media handles)

Assignment 2: Analyze and evaluate a brand's organic and paid digital strategies using academic sources and competitor benchmarking, supported by SEO audit tools and ad library insights. (Individual)

Assignment 3: Design and execute a multi-platform campaign. (Group)

**Text Book:**

**T1:** Gupta, Seema. *Digital Marketing* (3rd Edition, 2022). McGraw Hill Education. ISBN: 9789355320483

**T2:** Bhatia, Puneet Singh. *Fundamentals of digital marketing (3rd ed.). Pearson. ISBN: 9789357054928*

**References**

**R1:** Sachdev, Raj. (2024). *Digital marketing*. McGraw Hill Education. ISBN: 9781264608690

**R2:** Chaffey, Dave, & Ellis-Chadwick, Fiona. (2022). *Digital marketing: Strategy, implementation and practice* (8th ed.). Pearson Education. ISBN: 9781292400969

**Online Resources:**

**https://presiuniv.knimbus.com/user#/home**

**Articles:**

- **Wall Street Journal. (2025).** AI will soon dominate ad buying, whether marketers like it or not. *The Wall Street Journal*. Link: https://www.wsj.com/articles/ai-will-soon-dominate-ad-buying-whether-marketers-like-it-or-not-3d62b754

- **Economic Times. (2025).** Spearhead the shift to data-led, AI-powered digital marketing. *The Economic Times*. Link: https://economictimes.indiatimes.com/jobs/mid-career/spearhead-the-shift-to-data-led-ai-powered-digital-marketing/articleshow/121455704.cms

- **The Times. (2025).** Future-proof your marketing strategy with Google's AI rivals. *The Times*. Link: https://www.thetimes.co.uk/article/future-proof-marketing-strategy-google-ai-rivals-enterprise-network-dswkqjd3f

- **Business Insider. (2025).** Sam Altman said AI would replace 95% of ad agency work. 3 top creative directors say AI has won them lucrative business. *Business Insider*. Link: https://www.businessinsider.com/how-advertising-agencies-use-ai-to-pitch-win-business-2025-5

- **Economic Times. (2025, May 28).** WPP replaces GroupM with AI-powered WPP Media. *The Economic Times*. Link: https://economictimes.indiatimes.com/industry/media/entertainment/media/wpp-replaces-groupm-with-ai-powered-wpp-media/articleshow/121469920.cms

**Multimedia (Videos):**

**Videos on Digital Marketing**

- **Social Media Marketing for Small Business**
  Watch here
- **Digital Marketing and You – TED Talk by Ankit Srivastava**
  Watch here
- **Digital Marketing In 2025: Get Website Traffic By Doing This Now**
  Watch here
- **6 Marketing Trends You Need to Know in 2025**
  Watch here

**Case Studies:**

**HUGE and Digital Strategy**
*By:* Ramon Casadesus-Masanell; Nicholas G. Karvounis, Harvard Business School
*Link:* https://hbsp.harvard.edu/product/712442-PDF-ENG?Ntt=HUGE%20and%20Digital%20Strategy

**The YES: Reimagining the Future of e-Commerce with Artificial Intelligence**
*By:* Jill Avery, Harvard Business School
*Link:* https://hbsp.harvard.edu/product/521070-PDF-ENG?Ntt=The%20YES%3A%20Reimagining%20the%20Future%20of%20e-Commerce%20with%20Artificial%20Intelligence

**Digital Transformation at GE: What Went Wrong?**
*By:* Robert D. Austin, Ivey Business School
*Link:* https://hbsp.harvard.edu/product/W19499-PDF-ENG?Ntt=Digital%20Transformation%20at%20GE%3A%20What%20Went%20Wrong%3F

**Michael McCain: Tweeting on the Maple Leaf Foods Account**
*By:* Gerard Seijts; Steve Foerster, Ivey Business School
*Link:* https://hbsp.harvard.edu/product/W20903-PDF-ENG?Ntt=Michael%20McCain%3A%20Tweeting%20on%20the%20Maple%20Leaf%20Foods%20Account

**Cheekbone Beauty: Building an Indigenous Growth Venture**
*By:* Simon Parker, Ivey Business School
*Link:* https://hbsp.harvard.edu/product/W25813-PDF-ENG?Ntt=Cheekbone%20Beauty%3A%20Building%20an%20Indigenous%20Growth%20Venture

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| **Catalogue prepared by** | Dr Uttam Chakraborty, |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |

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| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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| **Course Code: FIN4112** | **Course Title: Financial Modelling and Corporate Finance**<br>**Type of Course: Program Core** | **L- T-P- C** | **2** | **1** | **2** | **4** |
| Version No. | 1.0 | | | | | |
| Course Pre-requisites | NIL | | | | | |
| Anti-requisites | NIL | | | | | |
| Course Description | This course provides students with a comprehensive understanding of the principles and practical applications of financial modeling and corporate finance. Through hands-on instruction, participants will learn to build robust financial models using Excel or other financial tools to support corporate decision-making and valuation.<br>The course covers key corporate finance topics, including capital budgeting, cost of capital, capital structure, working capital management, and valuation techniques such as discounted cash flow (DCF) and comparable company analysis. Students will apply these concepts by constructing financial models to analyze real-world business scenarios, assess investment opportunities, and support strategic financial planning. | | | | | |
| Course Objective | The objective of this course is to equip students with the essential skills and knowledge to build robust financial models and apply core principles of corporate finance in real-world business scenarios. Students will learn to forecast financial performance, conduct valuation analyses, assess investment decisions, and support strategic planning through quantitative techniques. The course aims to bridge theoretical finance concepts with practical modeling tools, enhancing students' ability to make data-driven financial decisions. | | | | | |
| Course Outcomes | By the end of this course, students will be able to:<br><br>CO1: Understand Core Concepts<br>Demonstrate a comprehensive understanding of key corporate finance concepts such as capital budgeting, valuation, cost of capital, risk analysis, and capital structure.<br><br>CO2: Apply Financial Modeling Techniques<br>Construct dynamic financial models using Microsoft Excel or similar tools to analyze financial statements, forecast performance, and evaluate investment opportunities.<br><br>CO3: Perform Company Valuation<br>Conduct company valuations using methodologies such as Discounted Cash Flow (DCF), Comparable Company Analysis, and Precedent Transactions. | | | | | |

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| | CO4: Analyze Financial Statements<br>Interpret and analyze income statements, balance sheets, and cash flow statements to assess the financial health and performance of a company.<br><br>CO5: Make Strategic Financial Decisions<br>Apply financial models to support strategic decisions in mergers & acquisitions, capital budgeting, and financing choices.<br><br>CO6: Integrate Theory and Practice<br>Synthesize financial theory with real-world data to solve practical business problems and present findings through reports and presentations.<br><br>CO7: Utilize Industry Tools and Best Practices<br>Employ best practices in financial modeling, including sensitivity analysis, scenario planning, and error checking to ensure model accuracy and reliability. | | | |
| Course Content | The course on Financial Modeling and Corporate Finance covers essential concepts such as financial statement analysis, forecasting, valuation techniques (DCF, comparable company analysis), and budgeting. Students learn to build dynamic financial models using Excel, including income statements, balance sheets, and cash flow projections. The course also explores capital structure, cost of capital, investment decision-making, and risk analysis. Through hands-on projects and case studies, learners gain practical skills to evaluate business performance, support strategic decisions, and communicate financial insights effectively in real-world scenarios. | | | |
| Module 1 | Foundations of Financial Modelling & Financial Statement Analysis | Experiential Learning | Hand shake with Modeling Basics | 6 Lectures, 2 Tutorials, 4 Practical Sessions |
| Introduction to Financial Modelling: Importance, Best Practices, and Spreadsheet Functions for Finance, Review of Financial Statements: Income Statement, Balance Sheet, Cash Flow Statement. Linkages and Interrelationships. Financial Statement Analysis: Ratio Analysis (Profitability, Liquidity, Solvency, Efficiency). Introduction to Forecasting: Top-down vs. Bottom-up Approaches, Key Drivers, Assumptions. Building a Simple Three-Statement Model: Linking Income Statement, Balance Sheet, and Cash Flow Statement. Practical Considerations in Model Building: Error Checking, Data Validation, Scenarios, and Sensitivity Analysis. | | | | |
| Module 2 | Time Value of Money, Capital Budgeting | Experiential Learning | Understanding of key corporate finance concepts such as capital budgeting, valuation, cost of capital | (7 Lectures, 2 Tutorials, 4 Practical Sessions) |

Time Value of Money: Present Value, Future Value, Annuities, Perpetuities.
Capital Budgeting Techniques: Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period, Profitability Index. Risk and Return: Standalone Risk, Portfolio Risk, Diversification, Capital Asset Pricing Model (CAPM).

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| Module 3 | Capital Structure, Cost of Capital | Experiential Learning | Capital Structure Decisions | (6 Sessions, 2 Tutorials, 4 Practical) |

**Cost of Equity:** Dividend Growth Model, Capital Asset Pricing Model (CAPM), Beta estimation, and adjustments. **Cost of Debt & Cost of Preferred Stock:** Calculating the after-tax cost of debt. Understanding preferred stock characteristics and cost. **Weighted Average Cost of Capital (WACC):** Calculation and practical considerations for WACC. **Capital Structure Theories:** Modigliani-Miller propositions (with and without taxes), trade-off theory, pecking order theory. **Types of dividends**, dividend theories (relevance vs. irrelevance), factors influencing dividend policy, share repurchases.

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| Module 4 | Capital Budgeting Decisions and Valuations | Experiential Learning | Capital Budgeting Decisions | 5 Lectures, 2 Tutorials, 4 Practical Sessions |

Capital Budgeting Decisions: Project evaluation techniques revisited (NPV, IRR, Payback Period, Profitability Index). Real options. Valuation Fundamentals: Introduction to different valuation approaches – Discounted Cash Flow (DCF), Relative Valuation (Multiples). Free Cash Flow to Firm (FCFF) & Free Cash Flow to Equity (FCFE): Derivation and importance for valuation. Discounted Cash Flow (DCF) Valuation Model: Building a DCF model step-by-step, terminal value calculation. Sensitivity Analysis & Scenario Analysis: Understanding how changes in key assumptions impact model outputs. Data tables, Goal Seek, Scenario Manager.

Introduction to Mergers & Acquisitions (M&A) Modelling: Accretion/dilution analysis basics, key M&A considerations.

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| Module 5 | Working Capital Management | Experiential Learning | Working Capital Management | (5 Lectures, 2 Tutorials, 4 Practical Sessions) |

**Overview of Working Capital Management:** Definition, components, importance, operating cycle, cash conversion cycle. **Inventory Management:** Costs of inventory, EOQ model, just-in-time (JIT) inventory, inventory control systems. **Receivables Management:** Credit policy, credit terms, collection policies, factoring. **Payables Management:** Managing accounts payable, trade credit, stretching payables.

Targeted Application & Tools that can be used:

- Microsoft Excel (or equivalent spreadsheet software), Python (depends on students compatibility)

Tutorial Plan:

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| 1 | Practice calculating and interpreting key financial ratios from given financial statements. |

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| 2 | Solving problems related to future value, present value, and simple NPV/IRR calculations. |
| 3 | **Forecasting Techniques & Driver Identification:** Case studies on identifying appropriate drivers for various financial line items. |
| 4 | **Resolving Circularity in Simple Models:** Manual and iterative methods for dealing with circular references. |
| 5 | **WACC Calculation Case Studies:** Practical exercises on calculating WACC for different companies using real-world data. |
| 6 | **Capital Structure and Dividend Policy Problem Solving:** Discussion of qualitative and quantitative problems related to capital structure and dividend decisions. |
| 7 | **DCF Valuation Case Study:** Working through a complete DCF valuation exercise from assumptions to value. |
| 8 | **M&A Accretion/Dilution Problem Solving:** Simple exercises to understand the impact of M&A on EPS. |
| 9 | **Cash Conversion Cycle & Working Capital Ratios:** Practical exercises on calculating and interpreting working capital metrics. |
| 10 | **Inventory & Receivables Management Problems:** Solving quantitative problems related to EOQ, credit terms, and collection efficiency. |

Practical Plan:

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| 1 | Excel Basics for Financial Modelling: Setting up a clean worksheet, formatting, essential functions (SUM, AVERAGE, IF, COUNT, etc.). |
| 2 | Building a Simple Income Statement: From raw data to a structured Income Statement in Excel. |
| 3 | Building a Simple Balance Sheet: Constructing a basic Balance Sheet in Excel, ensuring it balances. |
| 4 | Linking Financial Statements: Initial steps to link a basic Income Statement and Balance Sheet. |
| 5 | **Building Revenue and Cost of Goods Sold Forecasts:** Practical application of forecasting techniques in Excel. |
| 6 | **Forecasting Operating Expenses & Working Capital Accounts:** Extending the model to include these forecasts. |
| 7 | **Constructing a Full Integrated Financial Model (Part 1):** Building the Income Statement and linking it to the Balance Sheet. |
| 8 | **Constructing a Full Integrated Financial Model (Part 2):** Completing the Cash Flow Statement and ensuring the model balances. Addressing initial circularities. |
| 9 | **WACC Model in Excel:** Building a dynamic WACC calculator in Excel, incorporating different inputs for equity, debt, and preferred stock. |

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| 10 | **Beta Calculation and Unlevering/Levering Beta:** Using historical data to calculate beta and adjusting for leverage. |
| 11 | **Modeling Debt and Equity Financing Scenarios:** Integrating different financing assumptions into an existing integrated model. |
| 12 | **Impact of Capital Structure on Valuation:** Analyzing how changes in debt-to-equity ratio affect WACC and potentially firm value in a model. |
| 13 | **Building a Capital Budgeting Model:** Creating a model to evaluate a new project using NPV and IRR. |
| 14 | **Building a DCF Valuation Model:** Constructing a comprehensive DCF model from a pre-built integrated financial statement model. |
| 15 | **Sensitivity Analysis & Scenario Analysis in Excel:** Applying data tables, Scenario Manager, and Goal Seek to the DCF model. |
| 16 | **Introduction to M&A Modelling - Accretion/Dilution:** Building a simple accretion/dilution model for a hypothetical merger. |
| 17 | **Working Capital Forecasts Integration:** Refining working capital forecasts within the integrated financial model. |
| 18 | **Cash Budgeting Model:** Building a detailed cash budget for a company. |
| 19 | **Inventory Management Model:** Developing a model to analyze optimal inventory levels (e.g., EOQ). |
| 20 | **Accounts Receivable and Payable Management Model:** Modeling the impact of changes in credit terms or payment policies on cash flows. |

Text Book

Financial Modeling by Simon Benninga (MIT Press)

Corporate Finance by Stephen A. Ross, Randolph W. Westerfield, and Jeffrey Jaffe (McGraw-Hill Education)

Reference Books

Valuation: Measuring and Managing the Value of Companies by McKinsey & Company (Wiley)

*Damodaran on Valuation* by Aswath Damodaran (Wiley)

Reference Books

Web Links and Case Study Links

| | |
|---|---|
| Catalogue prepared by | Dr. Megha Pandey |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

<table>
<tr><td>Course Code:<br>OBH4112</td><td colspan="5">Course Title:<br>People, Performance and HR Strategy<br>Type of Course: Program Core</td><td>L<br>2</td><td>T<br>1</td><td>P<br>0</td><td>C<br>3</td></tr>
<tr><td>Version No.</td><td colspan="9">2.0</td></tr>
<tr><td>Course<br>Pre-requisites</td><td colspan="9">NIL</td></tr>
<tr><td>Anti-requisites</td><td colspan="9">Nil</td></tr>
<tr><td>Course<br>Description</td><td colspan="9">People, Performance and HR Strategy" explores the strategic role of human resources in driving organizational success. The course examines how effective people management enhances performance, fosters employee engagement, and how strategic human resource management (HRM) aligns with broader business objectives to drive performance, innovation, and competitive advantage.<br><br>Using real-world case studies, students will evaluate how organizations leverage their people strategies to respond to internal and external pressures, including market competition, workforce diversity, and digital transformation. By the end of the course, students will be equipped with the tools and frameworks necessary to develop and lead effective HR strategies that improve organizational performance and foster long-term success. This course is ideal for aspiring HR professionals, managers, and business leaders.</td></tr>
<tr><td>Course Objective</td><td colspan="9">1. Define key concepts and terminology related to human resource strategy, performance management, and problem solving in organisational set up. (Blooms Level: Comprehension)<br>2. Demonstrate the relationship between HR practices, employee performance, and organizational outcomes within various business contexts. (Blooms Level: Application)<br>3. Evaluate how HR strategies influence employee behaviour, motivation, and overall performance resulting in organizational effectiveness. (Experiential learning) (Blooms Level: Evaluation)<br>4. Develop comprehensive HR strategies that integrate people management, performance metrics, and business objectives to drive sustainable success. (Blooms Level: Create</td></tr>
<tr><td>Course Out Comes</td><td colspan="9">This course will enhance the organizational people management skills of the students through participative learning that will be helpful for managing organizations.</td></tr>
<tr><td>Course Content:</td><td colspan="9"></td></tr>
<tr><td>Module 1</td><td colspan="3">Managing People for Performance at work</td><td colspan="3">Assessment</td><td colspan="2">Quiz</td><td>12 Sessions</td></tr>
<tr><td colspan="10">Topics: People Management, benefits of people Management, Individual vs. team behaviour, Role of manager in managing performance, Individual vs. team vs. organizational performance, Goal</td></tr>
</table>

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|---|---|---|---|---|
| setting, feedback, Performance appraisal methods, High-performance work systems (HPWS), Addressing underperformance. [ Blooms level: Comprehension] | | | | |
| **Module 2** | Approaches to Performance Systems | Assessment | Assignment - Team Survey | 12 Sessions |
| Performance Appraisal Vs Performance Management, significance of Performance management systems, factors affecting performance; Objective of Performance management systems, Performance management cycle, performance management process, Performance Management methods- Traditional & Modern methods. [ Blooms level :Application] | | | | |
| **Module 3** | Strategic Foundations of HRM | Assessment | Case Analysis | 12 Sessions |
| Strategy -meaning, Introduction to Strategic Human Resource Management (SHRM), The evolving role of HR in business strategy, types of HR strategies, Role of HR strategy in succession planning, Models and frameworks of HR strategy (e.g., Harvard, Michigan models), HR's role in value creation and competitive advantage, Linking people management to organizational performance. [ Blooms level :Application] | | | | |
| **Module 4** | Performance and HR Strategy | Assessment | Mini Project | 9 Sessions |
| Linking HR with performance, ways to motivate the performance, Universalistic vs. contingency approaches strategies, aligning performance systems with organizational strategy, KPIs, SMART | | | | |

goals Legal and ethical considerations, Diversity, equity, and inclusion in strategic HR, Organizational strategy and its implications for HR, Measuring ROI on HR performance. [ Blooms level :Application]

**Targeted Application & Tools that can be used:**

- Fundamental exposure to the qualitative and quantitative surveys techniques in**: People, Performance and HR Strategy.**
- Professionally Used Software: Microsoft excel, SPSS, R software, and qualitative techniques, Tableau, Microsoft Power BI, Skill Assessment Platforms.

**Project work/Assignment: Mention the Type of Project /Assignment proposed for this course:**

1. Quiz related to the basic concepts of People Management, Appraisal Methods etc.
2. Design a suitable appraisal method to suit the labours working in Cement factory and compare the appraisal components with the appraisal form of IT industry team leaders.
3. Case analysis on performance appraisal: Who moved my Cheese? /Case Study: Tata Motors; Talent Management Fast Track Selection Scheme
4. Undertake a mini project survey to assess the ways to motivate the over performer and underperformer.

**Text Book**

T1: Dessler, Gary & Varkkey, Biju (2020). Human Resource Management, 16th Edition, Pearson Education, New Delhi.
T2: Rao, P Subba (2022). Personnel and Human Resource Management, 5th Edition, Himalaya Publishing House

**REFERENCE BOOK**
R1: Armstrong, M. (2022). *Armstrong's handbook of performance management: An evidence-based guide to delivering high performance* (6th ed.). Kogan Page.
R2: Schmidt, L. (2021). *Redefining HR: Transforming people teams to drive business performance*. Kogan Page.
R3: Armstrong, M., & Taylor, S. (2023). Armstrong's handbook of strategic human resource management (7th ed.). Kogan Page.

**Web Resources:**

**Web Links:**

1. A review of performance measurement: Towards performance management

https://puniversity.informaticsglobal.com:2282/ehost/detail/detail?vid=7&sid=41ff6170-e9b6-4fdc-bd4a-bb122d67f0f7%40redis&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=18259872&db=iih

2. https://ocw.mit.edu/courses/15-660-strategic-hr-management-spring-2003/g/

**Related Articles:**

1. **Impact of e-leadership and team dynamics on virtual team performance in a public organization**
   https://www-emerald-com-presiuniv.knimbus.com/insight/content/doi/10.1108/IJPSM-08-2020-0218/full/html
2. **Managing Diversity In The Workplace: Age, Language And Culture**
   https://www.forbes.com/sites/forbesbusinesscouncil/2021/08/12/managing-diversity-in-the-workplace-age-language-and-culture/?sh=32d35341e954
3. Case Study: Apigee; People Management Practices and Challenge of growth. (Ivey Publishing-ISB-H)

**Sample Data Set:** School Teachers- employee data set with demographics, performance scores, strategies adopted for retention etc. -collected through surveys.

**Book - References:**


- Becker, B. E., & Huselid, M. A. (2021). High performance work systems and firm performance: A synthesis of research and managerial implications. In The strategic human resource management sourcebook (pp. 123–140). Oxford University Press.
- Schmidt, L. (2021). Redefining HR: Transforming people teams to drive business performance. Kogan Page.
- Madhani, P. M. (2024). Strategic HR analytics: Driving business performance. *ResearchGate*. https://www.researchgate.net/publication/377208077_Strategic_HR_Analytics_Driving_Business_Performance
- People Strong. (2023). *Performance insights handbook*. https://www.peoplestrong.com/sg/white_paper/performance-insights-handbook


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|---|---|
| **Catalogue prepared by** | Dr.A.Abirami / Associate Professor / School of Management |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
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| **Course Code:** | | **L** | **T** | **P** | **C** |
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|---|---|---|---|---|---|---|
| **QNT5121** | **Course Title: Programming for Business Data Analytics**<br>**Type of Course: Program Core** | | **3** | **0** | **2** | **4** |
| **Version No.** | 1.0 | | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | | |
| **Anti-requisites** | | | | | | |
| **Course Description** | This course introduces students to the foundations of programming using Python or R in the context of business analytics. Learners will gain hands-on experience in data manipulation, data visualization, and basic statistical analysis to solve real-world business problems and derive actionable insights. | | | | | |
| **Course Outcomes** | **CO1** | **Understand** the role of programming in business analytics and data-driven decision making. | | | | |
| | **CO2** | **Apply** core programming constructs (variables, control statements, functions) to manipulate business data. | | | | |
| | **CO3** | **Analyze** structured and unstructured data using libraries like pandas/dplyr and matplotlib/ggplot2. | | | | |
| | **CO4** | **Create** Develop data-driven solutions through practical coding, exploratory data analysis, and visualization. | | | | |
| **Course Objective** | This course aims to enhance learners' employability and technical proficiency in programming and data analysis through experiential learning, industry-oriented use cases, and hands-on projects using Python/R. | | | | | |
| **Module 1** | **Introduction to Business Analytics Programming** | Quiz (Participative Learning) | **10 Sessions + 5 Practical** | | | |
| **Topics:** Overview of Business Analytics, Introduction to Programming Languages (Python/R), Setting up the environment (Anaconda, Jupyter, RStudio), Data Types, Variables, Operators, and Expressions, Input/Output and Basic Debugging. | | | | | | |
| **Module 2** | **Control Structures and Functions** | Assignment using E Library (Participative Learning) | **10 Sessions + 5 Practical** | | | |
| **Topics**: Conditional Statements and Loops, Functions and Modular Programming, Error Handling, Use case: Automating report generation. | | | | | | |
| **Module 3** | **Data Handling and Manipulation** | Case Study (Experiential Learning) | **10 Sessions + 5 Practical** | | | |

<table>
<tr><td colspan="4">Topics: Working with data frames (pandas/dplyr), Data cleaning, missing values, and outlier detection Sorting, Filtering, and Grouping Data, Use case: Sales and customer segmentation analysis.</td></tr>
<tr><td>Module 4</td><td>Data Visualization</td><td>Class activity (Project Work)</td><td>8 Sessions + 5 Practical</td></tr>
<tr><td colspan="4">Topics: Introduction to data visualization principles, plotting with matplotlib/seaborn (or ggplot2 in R) Dashboards with Plotly and interactive visualizations Use case: Marketing campaign performance dashboard.</td></tr>
<tr><td>Module 5</td><td>Introduction to Analytics with Programming</td><td>Hands-on with Tools</td><td>7 Sessions + 5 Practical</td></tr>
<tr><td colspan="4">Topics: Descriptive Statistics and Exploratory Data Analysis, Introduction to Predictive Analytics – Regression basics, building simple predictive models, Use case: Predicting customer churn.</td></tr>
<tr><td colspan="4">Targeted Application & Tools that can be used:<br>Python: Jupyter Notebook, pandas, matplotlib, seaborn, scikit-learn<br>R: RStudio, dplyr, ggplot2<br>Datasets from Kaggle/UCI Machine Learning Repository.</td></tr>
<tr><td colspan="4">Project work/Assignment:</td></tr>
<tr><td colspan="4">Assignment 1: Module 1 – Quiz<br>Assignment 2: Module 2 - Written Assignment<br>Assignment 3: Module 3 - Case study<br>Assignment 4: Module 4 - Project Work</td></tr>
<tr><td colspan="4">Text Book:<br>T1: Miller, T. (2014). Modeling Techniques in Predictive Analytics with Python and R: A Guide to Data Science. Pearson FT Press.</td></tr>
<tr><td colspan="4">Reference Books:<br>R1: VanderPlas, J. (2016). Python Data Science Handbook. O'Reilly Media.<br>R2: Wickham, H., & Grolemund, G. (2017). R for Data Science. O'Reilly Media.<br>R3: Provost, F., & Fawcett, T. (2013). Data Science for Business. O'Reilly Media.</td></tr>
<tr><td colspan="4">Online Resources:<br>• https://presiuniv.knimbus.com/user#/home<br>• https://www.kaggle.com<br>• https://www.datacamp.com<br>Research Articles:<br><br>Multimedia (Videos):<br><br>Case Studies:<br>1. Netflix – Customer retention through recommendation systems<br>2. Walmart – Inventory analytics with Python<br>3. Uber – Surge pricing and predictive analytics<br>4. Zomato – Analyzing user behavior to improve engagement</td></tr>
</table>

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|---|---|
| **Catalogue prepared by** | **Dr. P. Mary Jeyanthi** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code:** QNT5122 | **Course Title: Data Story Telling**<br>**Type of Course: Program Core** | **L** | **T** | **P** | **C** |
| | | **3** | **0** | **2** | **4** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course is designed to help learners develop the skill of translating complex data into compelling, actionable stories using tools like Power BI / Tableau. Students will gain hands-on experience in visual analytics, dashboard creation, and narrative crafting for data-driven decision-making. | | | | |
| **Course Outcomes** | **CO1** | **Understand** the principles of data storytelling and the role of visual analytics in communication. | | | |
| | **CO2** | **Apply** Power BI/Tableau to design interactive dashboards and visual stories. | | | |
| | **CO3** | **Analyze** data trends and patterns to drive business insights. | | | |
| | **CO4** | **Create** Develop and present compelling data narratives for strategic decision-making. | | | |
| **Course Objective** | This course aims to enhance learners' **employability skills** through **experiential and participative learning**, enabling them to communicate data insights effectively to varied stakeholders. | | | | |
| **Module 1** | **Introduction to Data Storytelling** | Participative Learning (Assignment /Case-based) | | **10 Sessions + 5 Practical** | |

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| **Topics:** Why storytelling matters in data communication, Components of an effective data story, Understanding the audience and context, Introduction to Power BI/Tableau interfaces and features. | | | |
| **Module 2** | **Data Preparation and Transformation** | Hands-on Practical (Lab)/Assignment | **10 Sessions + 5 Practical** |
| **Topics**: Data sources, cleaning, and shaping data, Using Power Query and Tableau Prep, Data models and relationships, Measures and calculated fields | | | |
| **Module 3** | **Visual Design and Best Practices** | Case Study (Experiential Learning) | **10 Sessions + 5 Practical** |
| **Topics:** Choosing the right chart types, Visual design principles (color, layout, consistency), Avoiding misleading visuals, Incorporating storytelling elements in dashboards. | | | |
| **Module 4** | **Crafting a Narrative with Dashboards** | Mini Project (Group Work) | **8 Sessions + 5 Practical** |
| **Topics:** Telling a story through interactive dashboards, Filters, slicers, drill-downs, User interactivity and dashboard aesthetics, Using storytelling templates and flow techniques. | | | |
| **Module 5** | **Case Studies & Story Presentation** | Classroom Presentation & Peer Review | **7 Sessions + 5 Practical** |
| **Topics:** Industry use-cases: Sales, HR, Finance, Marketing dashboards, Real-world problem-solving through data storytelling, Storyboarding and pitch deck creation, Final presentation and feedback | | | |
| **Targeted Application & Tools that can be used:** Power BI, Tableau, Tableau Public | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 – Assignment/Case-based<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>T1: Cole Nussbaumer Knaflic (2015). *Storytelling with Data: A Data Visualization Guide for Business Professionals*. Wiley. | | | |
| **Reference Books:**<br>R1: McCandless, D. (2012). *Information is Beautiful*. HarperCollins.<br>R2: Few, S. (2012). *Show Me the Numbers: Designing Tables and Graphs to Enlighten*. Analytics Press.<br>R3: Microsoft & Tableau official documentation and eLearning materials. | | | |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br>https://learn.microsoft.com/en-us/power-bi/ | | | |

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| **Research Articles:**<br><br>**Multimedia (Videos):**<br><br>**Case Studies:**<br>• How Power BI helped Coca-Cola bottlers increase supply chain transparency<br>• Tableau in WHO: Health analytics dashboards<br>• Netflix viewing behavior storyboards<br>• Retail analytics dashboard for customer segmentation |

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**3rd semester:**

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|---|---|---|---|---|---|---|
| **Course Code: GMM4113** | **Course Title: Business Strategy and Corporate Transformation**<br>**Type of Course: Program Core only** | **L - T- P - C** | **2** | **1** | **0** | **3** |
| **Version No.** | 1.0 | | | | | |
| **Course Pre-requisites** | GMM4111 Managerial Economics<br>MKT4111 Marketing Management - Theories and Practices | | | | | |
| **Anti-requisites** | **NIL** | | | | | |
| **Course Description** | Corporate Strategy has become a significant point of the modern corporate world. The changing phases of the competition, the political and social changing faces, the invention of new techniques, and new ideas have compelled the corporate world to embrace the corporate strategy concept and come out with the success. This course (Corporate Strategy) is an integral part of the Strategic Management. Strategic Management is involved in many of the decisions that a leader makes.<br>This course includes what is a strategy, corporate direction, environmental scanning, and sources of competitive advantage, BEVUCA, Neurostrategy, strategy formulation, competitive strategies in emerging industries, balanced scorecard, and International Business. | | | | | |

<table>
<tr><td>Course Objective</td><td colspan="5">This course is designed to improve the EMLOYABILITY SKILLS by using participative learning.</td></tr>
<tr><td>Course Outcomes</td><td colspan="5">On successful completion of this course the students shall be able to:<br>1) Define corporate strategy<br>2) Identify various factors of competitive advantage<br>3) Explain various generic competitive strategies<br>4) Prepare a Balanced Scorecard for an organization.</td></tr>
<tr><td>Course Content:</td><td colspan="5"></td></tr>
<tr><td>Module 1</td><td>Introduction to Strategic Management</td><td>Case: Strategic Analysis of Starbucks Corporation</td><td>Data Analysis: Analysis the different tools used in Neurostrategy based on University SCOPUS data base (% analysis).</td><td>12 Sessions</td></tr>
<tr><td colspan="5">Topics:<br>Module -I Introduction to Strategic Management<br>What is Strategic Management & Stages of Strategic Management, Integrating Intuition and Analysis, Adapting to Change, Key Terms in Strategic Management, External Opportunities and Threats & Internal Strengths and Weaknesses, Long-Term Objectives, Strategies and Annual Objectives & Policies, The Strategic-Management Model, Benefits of Strategic Management. Corporate Strategy, Directional Strategy, Portfolio Analysis Corporate Parenting. Nero strategy</td></tr>
<tr><td>Module 2</td><td>Environmental Scanning and Industry Analysis</td><td>Case Study: Southwest Airline</td><td>Data Analysis: Ident</td><td>12 Sessions</td></tr>
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| | | | ification of factors responsible for BEVUCA Environment through questionnaire or from literature. | |
| Capabilities and Competencies, Sources of Competitive Advantage: Position and Capability, Value Chain analysis- primary and secondary activities, Internal and External environmental analysis, SWOT, PESTEL analysis, VUCA & BEVUCA, how strategy shapes structure- structuralist and reconstructionist approach- blue and red ocean strategy, Dubai strategy proposition. The Nature of an Internal Audit, Key Internal Forces, The Resource-Based View (RBV) Integrating Strategy and Culture Industry Analysis: The External Factor Evaluation (EFE) The Competitive Profile Matrix (CPM) | | | | |
| **Module 3** | **Strategy Formulation** | **Case study:** Class- or Mass(HBR), Idalene F. Kesner and Rockney Walters(2005). | **Data Analysis:** Application of design thinking in industry, based on themes and sub | **12 Sessions** |

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| | | | theme analysis.(Application of spreadsheet with provided data base). | |
| Generic Competitive Strategies- Cost leadership, Differentiation and focus, risk of generic strategy, The Balanced Scorecard, Types of Strategies, Levels of Strategies, Integration Strategies, Forward Integration & Backward Integration, Horizontal Integration, Intensive Strategies, Market Penetration & Market Development, Product Development, Diversification Strategies, Defensive Strategies A framework for competitor analysis- Michael Porter's Five Generic Strategies | | | | |
| **Module 4** | **Competitive Strategy and corporate advantage** | **Case study: IKEA** (http://aeunike.lecture.ub.ac.id/files/2012/03/Case-Kel.9.pdf) | **Simulation:** Development and simulation of BSC with the help of spreadsheet. | **9 Sessions** |
| Topics: Competitive Strategy in emerging Industries- the structural environment, early mobility barriers, early mobility barriers, coping with the competitors, which emerging industries to enter. Evolution of global industries, strategic alternatives in global industries, How to Become a Sustainable Company, Balanced Score Card, Digital advantage – SMAC. International Business Strategy- mode of entry in international business, political and country risk in International Business. Implementing Strategies: Management and Operations Issues, Implementing Strategies: Marketing, Finance/Accounting, R&D, and MIS Issues. | | | | |

**Targeted Application & Tools that can be used:**

1. Module 1: Neurostrategy (Analysis of University SCOPUS database with the help of spreadsheet)
2. Module 2: BECUVA (Identification of Factors through SPSS)
3. Module 3: Design Thinking (Themes and sub themes analysis by VOSVIWER)
4. Module 4: Balanced Score Card (Spreadsheet application)

**Project work/Assignment:**

1.Quiz: Online quiz in University Edhitch platform (10 marks)

2. Article review

3. Identification of value creation process based on VRIO model of any organization of your choice(20 marks)

**Text Book**

Bhandari & Verma: *Strategic Management - A Conceptual Framework*, McGraw Hill Higher Education, New Delhi, India.
https://highered.mheducation.com/sites/125902640x/information_center_view0/index.html

**References**

R1: Strategic Management CONCEPTS AND CASES, Fred R. David Francis Marion University Florence, South Carolina, 13th ed. Pearson Education, Inc., publishing as Prentice Hall

R2: Michael E. Porter: Competitive Strategy, The Free Press, New York. http://www.mim.ac.mw/books/Michael%20E.%20Porter%20-%20Competitive%20Strategy.pdf.

R3: HBR'S 10 Must Reads on Strategy. Harvard University Press, Boston, Massachusetts.

R3: Paul Leinwand; Cesare Mainardi. *Strategy that works*, Harvard University Press, Boston, Massachusetts. https://www.scribd.com/document/533966997/Strategy-That-Works-How-Winning Companies-Close-the-Strategy-To-Execution-Gap-by-Paul-Leinwand-Cesare-R-Mainardi-Z-lib-org

**Additional reading:** Preparing your business in Post- Pandemic World(HBR) https://img1.wsimg.com/blobby/go/a53b688c-293a-4784-a01f-75c9461a886a/HBRs%2010%20Must%20Reads%20on%20Managing%20in%20a%20Downturn%2C%20.pdf

Presidency University Library link:
https://puniversity.informaticsglobal.com:2293/insight/content/doi/10.1108/TQM-12-2016-0109/full/html

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| **Catalogue prepared by** | Dr. S.FAKRUDDIN ALI AHMED |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

| **Course Code:** | | **L** | **T** | **P** | **C** |
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|---|---|---|---|---|---|
| **GMM4114** | **Course Title: Business Law and Regulatory Compliance**<br>**Type of Course: Program Core** | **3** | **0** | **0** | **3** |
| Version No. | 1.0 | | | | |
| Course Pre-requisites | Foundational Business Administration awareness, which includes the Fundamentals of Business or Management<br>Students should have a basic understanding of business functions such as marketing, finance, and operations to grasp how legal and regulatory issues impact different areas of business.<br><br>English Language Proficiency<br>Since legal documents, statutes, and case laws are often in English, students should be comfortable reading and interpreting formal and legal language.<br><br>Basic Understanding of Legal Systems (Recommended)<br>A general awareness of how the Indian legal system functions — including the roles of the legislature, judiciary, and regulatory bodies — will enhance learning, but is not mandatory. | | | | |
| Anti-requisites | Nil | | | | |
| Course Description | This course offers an in-depth understanding of the Indian legal and regulatory framework governing business operations. It covers essential aspects of business law, including the Indian Contract Act, Companies Act, Consumer Protection Act, Intellectual Property Act, and relevant regulations. The course also focuses on regulatory compliance requirements as mandated by bodies such as SEBI and other statutory authorities.<br><br>Students will develop the ability to identify legal risks, ensure compliance with sector-specific laws, and understand the implications of non-compliance in the Indian business environment. Through case studies, recent legal developments, and practical assignments, the course equips learners to align business practices with Indian legal standards. | | | | |
| Course Objective | This course is designed for skill development of the learner by using participative learning techniques.<br><br>□ Understand the foundational principles of business law relevant to the Indian legal system, including the laws governing contracts, companies, consumer rights, and Intellectual property rights.<br><br>□ Analyse key statutory and regulatory frameworks applicable to business entities in India, such as the Companies Act, 2013; SEBI regulations; FEMA.<br><br>□ Evaluate the role of regulatory bodies like SEBI in ensuring legal compliance and maintaining corporate accountability.<br><br>□ Interpret legal provisions and compliance obligations in business scenarios, and identify legal risks and implications of non-compliance. | | | | |

<table>
<tr><td>Course Outcomes</td><td colspan="4">CO1: Interpret foundational legal concepts and apply the principles of Indian Contract Law to evaluate the validity, performance, and breach of commercial agreements in business settings and analyze the legal framework governing the sale of goods. [Analyse]<br><br>CO2: Demonstrate a practical understanding of company formation and compliance requirements as outlined in the Companies Act, 2013, and apply the provisions of the Foreign Exchange Management Act (FEMA), 1999, to evaluate and manage foreign exchange transactions<br><br>CO3: Examine the key types of Intellectual Property Rights (IPRs) in India and apply relevant legal principles to protect and manage intellectual assets in business, innovation, and branding strategies.<br><br>CO4: Interpret and apply the provisions of the Consumer Protection Act, 2019, to identify consumer rights, assess business responsibilities, and resolve consumer disputes in compliance with the legal framework governing consumer protection in India.</td></tr>
<tr><td>Course Content:</td><td colspan="4"></td></tr>
<tr><td>Module 1</td><td>Introduction to the Indian Legal System and the Indian Contract Act, The Sale of Goods Act, 1930</td><td></td><td>Assessment 1 – MCQ Quiz on types of contracts, essentials, breach, and remedies.</td><td>Understand<br>10 Sessions</td></tr>
<tr><td colspan="5">Topics:<br>Sources and classification of Indian law, Essentials of a valid contract under the Indian Contract Act, 1872,Types of contracts and enforceability, Performance and discharge of contracts, Remedies for breach of contract and implications for business, Formation of Contract of Sale, Conditions and Warranties, Performance of Contract, Rights of an Unpaid Seller, “Doctrine of Caveat Emptor.<br>Activity: Real-life business agreement case studies.</td></tr>
<tr><td>Module 2</td><td>Companies Act -2013 & FEMA 1999</td><td></td><td>Assessment 2 – Crossword or Puzzle: Key company law terms (MOA, AOA, AGM, ROC, etc.) in a gamified format.</td><td>Understand<br><br>15 Sessions</td></tr>
<tr><td colspan="5">Definition of Company, Characteristics of a Company, Kinds of Companies, Incorporation of Companies.<br>Memorandum of Association (MoA) & Articles of Association (AoA), Directors: Appointment, Roles & Responsibilities, and grounds for disqualification of Directors, Types of Shares, Corporate Social</td></tr>
</table>

<table>
<tr><td colspan="5">Responsibility (CSR) under Section 135, Winding up of a Company, Introduction to FEMA, Regulatory Structure under FEMA, Current Account vs Capital Account Transactions, Foreign Exchange Transactions, Foreign Direct Investment (FDI) and FEMA, Overseas Direct Investment (ODI) guidelines under FEMA, Penalties and Enforcement Mechanism.<br><br>Activity: [FEMA Cases]<br>• Vodafone case – Dispute over the indirect transfer of Indian assets by a foreign entity<br>• Flipkart/Walmart investment – Under automatic vs. government route for FDI<br>• Startups raising funds – Understanding FEMA's role in ECB or FDI regulations</td></tr>
<tr><td>Module 3</td><td>Intellectual Property Rights (IPR)</td><td></td><td>Assessment 3 – Poster/Infographic: Students design an informative poster on types of IP (patents, trademarks, copyrights, etc.).</td><td>Analyse 10 Sessions</td></tr>
<tr><td colspan="5">Intellectual Property Rights (IPR)<br>Trademark Act, 1999: Registration, Infringement, Remedies, Copyright Act, 1957: Protection of literary, musical, artistic works, Patent Act, 1970: Patentability Criteria, Process, Rights of Patentees<br>Activity: Cases to be discussed:<br><br>□ Case: Basmati rice GI dispute<br>□ Case: Novartis v. Union of India (patent denial for cancer drug)<br>□ Copyright: Music and movie piracy implications</td></tr>
<tr><td>Module 4</td><td>Consumer Protection Act -2019</td><td></td><td>Assessment 4 Presentation -Case Laws on Celebrity Endorsements.</td><td>Understand<br><br>10 Sessions</td></tr>
</table>

Introduction to CPA, 2019, Key Definitions, Rights of Consumers (Section 2(9)), Consumer Disputes Redressal Agencies, E-Commerce and Consumer Rights, Duties and liabilities of e-commerce entities, Product Liability & Penalties, Liability of manufacturer, seller, and service provider, Conditions under which product liability arises, Penalties for misleading ads (endorser liability, celebrity accountability).

Activity:

Relevant Case Studies / Examples:

- Maggi noodles case (misleading advertisement & product safety)
- E-commerce refund disputes
- Celebrity endorsements leading to misleading promotions
- Case studies: Amazon/Flipkart refund complaints
- Debate: "Are Indian consumers truly protected in the digital age?"

Targeted Application & Tools that can be used:
Case lets and flowcharts to trace offer, acceptance, consideration, etc.
Poster making / Canva: Create awareness posters on types of IP.
Case analysis of FEMA violations or approvals (e.g., Flipkart/Walmart).

Project work/Assignment: Mention the Type of Project /Assignment proposed for this course

Web Resources:

- Full Text (PDF): India Code
- India Code Portal: Indian Kanoon
- AdvocateKhoj Bare Act: AdvocateKhoj

Sale of Goods Act, 1930

- Full Text (PDF): India Code
- India Code Portal: India Code
- Indian Kanoon: Indian Kanoon

Companies Act, 2013

- Full Text (PDF): India Code
- India Code Portal: India Code
- ICS Institute e-Book: e-book.icsi.edu

Intellectual Property Laws

- Patents Act, 1970 (PDF): Intellectual Property India
- Copyright Act, 1957 (PDF): Ministry of Education
- Trade Marks Act, 1999: Intellectual Property India

Consumer Protection Act, 2019

- Full Text (PDF): India Code
- India Code Portal: India Code
- Ministry of Consumer Affairs: consumeraffairs.nic.in

Foreign Exchange Management Act (FEMA), 1999

- Full Text (PDF): India Code
- Directorate of Enforcement: Enforcement Directorate

Text Books:

1. Kapoor, G. K., & Dhamija, S. (2023). *Business and corporate laws* (Latest ed.). Taxmann Publications.

| | |
|---|---|
| **2.** Pathak, A. (2022). *Legal aspects of business* (7th ed.). McGraw Hill Education. | |
| References:<br>1. Government of India. (2021). The Indian Contract Act, 1872: Bare act with illustrations (2021 ed.). Government of India Press.<br>2. Taxmann. (2022). Foreign exchange management manual (39th ed.). Taxmann Publications.<br>3. Taxmann. (n.d.). Consumer protection law & practice. Taxmann Publications.<br>(Use "n.d." if the publication year is not clearly mentioned on the book. Replace with the actual year if known.)<br>4. Bhandari, M. K. (2021). Law relating to intellectual property rights. Central Law Publications.<br>5. LexisNexis. (n.d.). Companies Act, 2013 (5th ed.). LexisNexis India. | |
| Catalogue prepared by | Dr. SHALINI ACHARYA |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code:** QNT5123 | **Course Title:** Predictive Analytics and Business Forecasting<br>**Type of Course: Specialization Track Core Theory and Practical Course** | **L** | **T** | **P** | **C** |
| | | **3** | **0** | **2** | **4** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course explores statistical and machine learning methods used to model and forecast business outcomes. Students will gain hands-on experience in predictive analytics tools and techniques, enabling them to generate actionable insights for strategic decision-making in uncertain business environments. | | | | |
| **Course Outcomes** | **CO1** | **Understand** Explain the theoretical foundation of predictive analytics and business forecasting. | | | |
| | **CO2** | **Apply** forecasting models like regression, time series, and exponential smoothing in business scenarios. | | | |
| | **CO3** | **Analyze** data using tools like Python/R to generate predictive models and evaluate their performance. | | | |
| | **CO4** | **Create** forecasting solutions using real-world business | | | |

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| | | datasets for marketing, finance, and operations. | |
| **Course Objective** | This course is designed to enhance **employability skills** by building **analytical thinking** and **practical forecasting abilities** through **experiential and participative learning**. | | |
| **Module 1** | **Introduction to Predictive Analytics** | Exploratory Data Analysis using Python/R (Participative Learning) | **10 Sessions + 5 Practical** |
| **Topics:** Introduction to Predictive Modeling – Descriptive vs Predictive Analytics – The Business Value of Predictive Analytics – Key Concepts – Predictive Modeling Process – CRISP-DM Framework – Overview of Tools. | | | |
| **Module 2** | **Regression Techniques for Prediction** | Mini Project on Linear and Logistic Regression (Experiential Learning) | **10 Sessions + 5 Practical** |
| **Topics**: Simple and Multiple Linear Regression – Model Evaluation ($R^2$, Adjusted $R^2$, RMSE) – Logistic Regression – Classification Accuracy – Use Cases in Marketing and HR. | | | |
| **Module 3** | **Time Series Forecasting** | Case Study/Time Series Forecasting in Excel/R (Case-Based Learning) | **10 Sessions + 5 Practical** |
| **Topics:** Time Series Components – Moving Average – Exponential Smoothing – ARIMA Models – Model Selection Criteria – Real-time Forecasting Examples in Retail and Finance. | | | |
| **Module 4** | **Machine Learning Approaches in Forecasting** | Assignment: Hands-on with Decision Trees and Random Forest (Experiential Learning) | **8 Sessions + 5 Practical** |
| **Topics:** Supervised vs Unsupervised Learning – Decision Trees – Random Forest – Model Interpretation – Comparison with Traditional Models – Use Cases in Sales Forecasting. | | | |
| **Module 5** | **Forecasting Applications in Business Strategy** | Group Project: Business Forecasting Challenge (Capstone Project) | **7 Sessions + 5 Practical** |
| **Topics:** Forecasting for Inventory and Demand Planning – Financial Forecasting – Predictive Customer Analytics – Ethics in Predictive Modeling – Presentation of Forecasting Strategy. | | | |
| **Targeted Application & Tools that can be used:** Python (Pandas, Scikit-learn, Statsmodels), R (Forecast, Tidyverse). | | | |
| **Project work/Assignment:** | | | |

**Assignment 1:** Module 1 - Quiz
**Assignment 2:** Module 2 - Written Assignment
**Assignment 3:** Module 3 - Case study
**Assignment 4:** Module 5 - Project Work

**Text Book:**

**T1:** Shmueli, G., Bruce, P. C., Yahav, I., Patel, N. R., & Lichtendahl Jr, K. C. (2017). *Data Mining for Business Analytics: Concepts, Techniques, and Applications in R*. Wiley.

**Reference Books:**

R1: Hyndman, R. J., & Athanasopoulos, G. (2021). *Forecasting: Principles and Practice* (3rd ed.). OTexts.
R2: Kuhn, M., & Johnson, K. (2013). *Applied Predictive Modeling*. Springer.
R3: James, G., Witten, D., Hastie, T., & Tibshirani, R. (2021). *An Introduction to Statistical Learning* (2nd ed.). Springer.

**Online Resources:**

**https://presiuniv.knimbus.com/user#/home**
https://otexts.com/fpp3/
https://scikit-learn.org/stable/

**Research Articles:**

**Multimedia (Videos):**

**Case Studies:**

- Netflix – Customer Retention through Predictive Modeling
- Amazon – Inventory Forecasting and Replenishment
- Walmart – Sales Forecasting Using Machine Learning
- Uber – Forecasting Driver Demand and Pricing

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| **Catalogue prepared by** | **Dr. P. Mary Jeyanthi** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code: QNT5124** | **Course Title:** Data Mining and Intelligent Decision Making<br>**Type of Course: Specialization Track Core Theory and Practical Course** | **L** | **T** | **P** | **C** |
| | | **3** | **0** | **2** | **4** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4113 Business Research and Analytics | | | | |

<table>
<tr><td>Anti-requisites</td><td colspan="3"></td></tr>
<tr><td>Course Description</td><td colspan="3">This course focuses on the principles and techniques of data mining and its applications in intelligent decision making. It explores classification, clustering, association, prediction, and anomaly detection using modern tools. The course integrates data-driven insights into managerial decisions and introduces intelligent systems in real-world contexts.</td></tr>
<tr><td rowspan="4">Course Outcomes</td><td>CO1</td><td colspan="2">Understand the fundamental concepts, processes, and applications of data mining in decision making.</td></tr>
<tr><td>CO2</td><td colspan="2">Apply data mining algorithms (classification, clustering, association rules) to extract patterns from data.</td></tr>
<tr><td>CO3</td><td colspan="2">Analyze complex datasets using appropriate data mining tools to support strategic decisions.</td></tr>
<tr><td>CO4</td><td colspan="2">Create intelligent solutions that integrate mined data into actionable business insights.</td></tr>
<tr><td>Course Objective</td><td colspan="3">This course enhances EMPLOYABILITY SKILLS through EXPERIENTIAL LEARNING in data handling, analysis, and automation of business decisions using SQL and data mining tools</td></tr>
<tr><td>Module 1</td><td>Introduction to Data Mining and SQL Basics</td><td>Assignment using E Library (Participative Learning)</td><td>10 Sessions + 5 Practical</td></tr>
<tr><td colspan="4">Topics: Data Mining vs. Traditional Analytics, KDD Process and Business Intelligence, Structured vs Unstructured Data, SQL Basics: SELECT, WHERE, ORDER BY, GROUP BY, JOINs. Case Study: Understanding Retail Data with SQL Queries.</td></tr>
<tr><td>Module 2</td><td>Classification Techniques with SQL Filters</td><td>Quiz (Participative Learning)</td><td>10 Sessions + 5 Practical</td></tr>
<tr><td colspan="4">Topics: Classification Techniques: Decision Trees, Naïve Bayes, KNN, SQL Conditions and CASE Statements for Data Labeling, Confusion Matrix, ROC Curve, Project: Customer Attrition Model using SQL and Scikit-learn.</td></tr>
</table>

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| **Module 3** | **Clustering, Association Rules, and Advanced SQL** | Case Study (Experiential Learning) | **10 Sessions + 5 Practical** |
| **Topics:** Clustering: K-Means, Hierarchical Clustering, Association Rule Mining (Apriori, FP-Growth), Advanced SQL: Nested Queries, CTEs, Window Functions, Mini Project: Segmenting Customers and Market Basket Analysis using SQL queries. | | | |
| **Module 4** | **Intelligent Decision Support Systems and SQL Dashboards** | Class activity/Project | **8 Sessions + 5 Practical** |
| **Topics:** Integrating Data Mining into Business Decisions, Decision Rules and Scoring Models, SQL Views, Stored Procedures, Triggers, Dashboard Development: Business KPIs & Visual Insights. | | | |
| **Module 5** | Tools and Case-Driven Implementation | Class activity/Project | **7 Sessions + 5 Practical** |
| **Topics:** Tools: Python (Pandas, Scikit-learn), MySQL, Power BI, Data Cleansing and Transformation using SQL, Building an end-to-end decision support system, Real-time Case Discussion: Sales Prediction, Fraud Detection. | | | |
| **Targeted Application & Tools that can be used:** SQL (MySQL / PostgreSQL), Python (Pandas, Scikit-learn, Matplotlib), RapidMiner, Power BI / Tableau. | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 – Assignment<br>**Assignment 2:** Module 2 - Quiz<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Han, J., Pei, J., & Kamber, M. (2011). *Data Mining: Concepts and Techniques* (3rd ed.). Morgan Kaufmann. | | | |
| **Reference Books:**<br>**R1:** Witten, I. H., Frank, E., & Hall, M. A. (2016). *Data Mining: Practical Machine Learning Tools and Techniques* (4th ed.). Elsevier<br>**R2:** Groff, J. R., & Weinberg, P. N. (2014). *SQL: The Complete Reference* (3rd ed.). McGraw-Hill<br>**R3:** Provost, F., & Fawcett, T. (2013). *Data Science for Business*. O'Reilly Media | | | |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br>https://mode.com/sql-tutorial/<br>https://archive.ics.uci.edu/ml/index.php<br><br>**Research Articles:**<br>• "Enhancing Business Intelligence with Data Mining and SQL Integration" – *Journal of Decision Systems*<br>• "Predictive Models for Intelligent Decision Systems" – *MIT Sloan Management Review*<br><br>**Multimedia (Videos):**<br><br>**Case Studies:**<br>• **Target Corporation** – Predictive Modeling using SQL | | | |

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| • **Zara** – Data-Driven Inventory Decisions<br>• **Uber** – Intelligent Dynamic Pricing Systems<br>• **Flipkart** – Fraud Detection using SQL & ML | |
| **Catalogue prepared by** | **Dr. P. Mary Jeyanthi** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

**4th Semester:**

| **Course Code: GMM4115** | **Course Title: Corporate Governance, Ethics and Social Responsibility**<br>**Type of Course: Program Core** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|
| | | **2** | **1** | **0** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | **Nil** | | | | |
| **Anti-requisites** | **Nil** | | | | |
| **Course Description** | Business Ethics is the art and discipline of applying ethical principles to examine and solve complex moral dilemmas. Ethical principles are the rules of conduct that are derived from ethical values, known as six pillars, namely trustworthiness, respect, responsibility, fairness, caring and citizenship. It is now established that high sense of professional morality must comprise one of the core values of corporate governance for the long term and also short term success of a company. Good corporate governance is an integral part of business ethics. The ethical values are regarded as imperatives for sustainable corporate growth and competitive edge. Hence a framework of effective accountability to the stakeholders is the essence of corporate governance. Corporate social responsibility is essentially a concept whereby companies integrate social and environmental concerns in their business operations and in the interaction with their stakeholders on voluntary basis. In doing so, they make an investment towards future and increase their profitability. In fact corporate governance and corporate social responsibility are interlinked with each other.<br>The students are given the right exposure to Business ethics, corporate governance & social responsibility, which help them understand new concerns and expectations from various stakeholders in the context of large scale | | | | |

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| | industrial change due to globalization. Opportunities for career progression can happen when there is application of ethical values in everything that one does, which means maintaining transparency and being socially responsible. | | |
| **Course Objective** | 1. Appraise various theories of ethical decision making,<br>2. Comply accepting the need of ethics in the global environment in which the organizations are functioning.<br>3. Point out the integration of ethics – in work-place management, marketing, accounting and finance, strategy etc. - towards the purpose of ethical growth of a business.<br>4. Recognize and understand the global perspectives of CSR, the corporate social responsiveness, corporate citizenship and sustainability,<br>5. Appraise in appreciating the importance of good corporate governance at domestic and international level, understand the various corporate governance systems in practice. | | |
| **Course Outcomes** | 1. To demonstrate conceptual skills of ethical theories and ethical decision making in the contest of organizational functioning.<br>2. To apply a comprehensive idea of corporate social responsibility in the interest of sustainability of planet for future generations.<br>3. To analyze development and understanding of corporate frauds, scams and the degrading environment and resources – (evidenced in class room discussions and the case study).<br>4. To appraise the concepts of corporate governance and learn the theories and practices of corporate governance.<br>5. To categorize various models of corporate governance around the world. | | |
| **Course Content:** | | | |
| **Module 1** | **Understanding Business Ethics** | Assessment 1 - Quiz | 12 Sessions |

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|---|---|---|---|
| Introduction to Business Ethics, Ethics vs Morals ,The relationship between morality, ethics and ethical theory Nature of ethics- Definition of Business Ethics. Ethics & Law<br>Why is business ethics important? Globalization and ethics . Effects of Globalization- Relevance of Globalization for Business Ethics Ethical impacts of globalization<br>Sustainability- a key goal of BE The need of sustainability.Sustainability- Triple Bottom Line theory. | | | |
| **Module 2** | **Evolution of Corporate Governance** | Assessment 2 – Assignment | 12 Sessions |
| Introduction, Meaning, Evolution,Nature & objectives of Corporate Governance. Global concerns, Historical Perspective of corporate governance,A brief from East India Company to Enron and World com. Managing agency system, promoter system, Anglo-American system. | | | |
| **Module 3** | **Theory and Practice of Corporate Governance** | Assessment 3 – Case Analysis | 12 Sessions |
| The concept of corporation, what is a corporate?The concept of corporate governance<br>Theoretical basis of corporate governance .Why corporate governance,<br>Contemporary corporate governance situation,Corporate governance<br>systems The Anglo- American Model,The German Model,<br>The Japanese Model<br>The common features in German and Japanese Models.<br>The Indian Model of corporate governance. | | | |
| **Module 4** | **Corporate Responsibility, Stakeholders and Citizenship** | Assessment 4 – Mini Project | 9 Sessions |
| Can a corporation have social responsibilities?<br>Why do corporations have social responsibilities? - Business reasons, Moral reasons and Legal reasons. Corporate social responsibility and forms of CSR.Carroll's four-part model of corporate social responsibility .Arguments For and against Corporate Social Responsibility<br>CSR and strategy: corporate social responsiveness- 4 'philosophies or strategies of social responsiveness (Carroll 1979) .Outcomes of CSR: corporate social performance- Donna Wood theory of CSP.Measuring Corporate Social Performance.Corporate Social Responsibility-Business Responsibilities in the 21st Century,Stakeholder theory of the firm- Traditional management model and A network model Why stakeholders matter? A new role for management as a result of stakeholder theory Stakeholder thinking in an international context Corporate accountability- Rise of Corporate Power- The problem of democratic accountability,Corporate Citizenship Concepts Corporate Citizenship – three perspectives,Assessing corporate Citizenship as a framework for business ethics. | | | |
| **Targeted Application & Tools that can be used:**<br>Case Study,Article review,QUIZ and CSR Project | | | |
| **Project work/Assignment: Mention the Type of Project /Assignment proposed for this course**<br>**Visit any MNC or Govt.Or NGO and Analyze CSR Policy and Prepare a PPT.** | | | |
| **Text Book:**<br>**1.** Crane, Andrew & Matten Dirk (2018) Business Ethics, Oxford Publications | | | |
| **References:**<br>1. Fernando,A.C(2006), Corporate Governance-Principles, Policies and Practices, Pearson Publications<br>2. Subhash Chandra Das, Corporate Governance in India an evaluation, Third edition- PHI Publications. | | | |
| **Catalogue prepared by** | Dr.Ramesh Muthuswamy | | |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 | | |

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|---|---|
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code: GMM4116** | **Course Title: Entrepreneurship and Innovation Management Type of Course: Program Core** | **L** | **T** | **P** | **C** |
| | | **1** | **0** | **4** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | **Nil** | | | | |
| **Anti-requisites** | **Nil** | | | | |
| **Course Description** | This course offers a comprehensive exploration of the theories, frameworks, and real-world applications of entrepreneurship and innovation management. It equips learners with the knowledge and tools needed to identify opportunities, generate innovative ideas, and transform them into sustainable business ventures. Emphasis is placed on entrepreneurial mind-set development, business model innovation, lean start-ups methodologies, and the role of technology and digital disruption in creating competitive advantage. Students will engage in hands-on experiential learning through simulations, group projects, case analyses, and start-ups pitching exercises. The course also highlights critical aspects of start-up financing, resource planning, and legal frameworks. Furthermore, it examines innovation ecosystems, policy interventions, and sustainability practices, enabling students to build ventures that are not only viable but socially responsible. By the end of the course, learners will be well-prepared to launch, manage, or support innovative business initiatives. | | | | |
| **Course Objective** | This course aims to enhance student's entrepreneurship skills through experiential learning methods such as business simulations, real-time venture creation, and interactive case studies. It focuses on developing an entrepreneurial mindset, innovation capabilities, and the ability to navigate real-world challenges in launching and managing start-ups. | | | | |
| **Course Out Comes** | 1. **Understand** the entrepreneurial process and innovation life cycles. *(Understand)*<br>2. **Apply** design thinking and lean startup methodologies to real-world problems. *(Apply)*<br>3. **Analyze** the feasibility of innovative business models in competitive environments. *(Analyze, Evaluate)*<br>4. **Create** a launch-ready entrepreneurial venture plan integrating innovation and sustainability. *(Create)* | | | | |
| **Course Content:** | | | | | |
| **Module 1** | **Foundations of Entrepreneurship and Innovation** | Assessment 1 | | Concept Quiz + Ecosystem Mapping | 10 Sessions |
| Introduction to Entrepreneurship, Historical Evolution and Theories of Entrepreneurship, Traits and Competencies of Entrepreneurs, Types of Entrepreneurship (Corporate, Social, Tech, etc.), Role of Entrepreneurs in Economic Development, Innovation Defined: Concepts and Characteristics, Types | | | | | |

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| of Innovation: Incremental vs. Radical, Entrepreneurial Ecosystems and Innovation Clusters, Policy Support and Government Initiatives, Guest Lecture/Startup Founder Talk. | | | | |
| **Module 2** | **Ideation, Design Thinking, and Innovation Frameworks** | Assessment 2 | Creative Ideation Report + Peer Review | 10 Sessions |
| Introduction to Creative Thinking and Ideation, Sources of Innovative Ideas (Trend Analysis, Problem Framing), Brainstorming and SCAMPER Techniques, TRIZ and Lateral Thinking Tools, Introduction to Design Thinking, Empathy Mapping and User Research, Ideation and Prototyping in Design Thinking, Business Model Innovation, Intellectual Property Rights and Idea Protection, Pitching Initial Concepts (Peer Review) | | | | |
| **Module 3** | **Business Models, Validation & Resource Planning** | Assessment 3 | Case Study + Investor Deck Analysis | 10 Sessions |
| Introduction to Business Models, Business Model Canvas (BMC): Overview, Deep Dive into BMC Components, Value Proposition Design, Market Research and Customer Validation, Lean Startup Principles: Build-Measure-Learn, MVP Development and Testing, Resource Planning and Team Building, Risk Identification and Mitigation Strategies, Real Startup Case Study Analysis | | | | |
| **Module 4** | **Financing, Scaling and Sustainable Ventures** | Assessment 4 | Venture Pitch Simulation + Mini Project | 10 Sessions |
| Introduction to Startup Financing, Bootstrapping, Angel Investment, Venture Capital, Crowd funding and Alternate Finance Models, Financial Planning and Unit Economics, Crafting and Delivering a Business Pitch, Negotiation and Term Sheets, Scaling Strategies for Startups, Managing Innovation in Growth Phase, Sustainable and Social Entrepreneurship, Final Pitch Simulation + Feedback Round | | | | |
| **Targeted Application & Tools that can be used:**<br>• Business Model Canvas (Strategyzer)<br>• Leanstack, Miro, Trello for project tracking<br>• Customer Validation Board<br>• Pitch Deck Templates<br>• Canva for visual storytelling | | | | |
| **Project work/Assignment:** Students will ideate, validate, and pitch an original venture using real-world tools. Peer feedback, mentor reviews, and simulation-based learning are integrated. | | | | |
| **Web Resources:**<br>• www.strategyzer.com<br>• www.startupindia.gov.in<br>• www.techstars.com<br>• www.seedrs.com<br>• www.ycombinator.com<br><br>**Sample Data Set:**<br>Market data from Statista or Startup Genome<br>Customer feedback templates<br>Industry-specific problem statements | | | | |
| **Text Book**<br>T1: Hisrich, R.D., Peters, M.P., & Shepherd, D.A. Entrepreneurship (10th ed.) – McGraw-Hill Education<br>T2: Drucker, P.F. Innovation and Entrepreneurship – Harper Business<br>T3: Barringer, B.R., & Ireland, R.D. Entrepreneurship: Successfully Launching New Ventures – Pearson<br>T4: Byers, T., Dorf, R., & Nelson, A. Technology Ventures: From Idea to Enterprise – McGraw-Hill | | | | |
| **References** | | | | |

| | |
|---|---|
| R1: Hisrich, R.D., Peters, M.P., & Shepherd, D.A. Entrepreneurship, McGraw-Hill<br>R2: Osterwalder, A. & Pigneur, Y. Value Proposition Design, Wiley<br>R3: Tidd, J. & Bessant, J. Managing Innovation, Wiley | |
| **Catalogue prepared by** | Dr. Mohammed Mansoor & Prof. Shivaprasad |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

**SPECILAIZATION TRACK ELECTIVE – BUSINESS ANALYTICS**

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|---|---|---|---|---|---|
| **Course Code:** QNT5113 | **Course Title: Computer Vision Tools for Business Type of Course: Specialization Track Elective Theory and Practical** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course provides an in-depth exploration of Computer Vision (CV) technologies and their applications in solving real-world business problems. Students will learn to use various CV tools and libraries like OpenCV, Tensor Flow, and YOLO to extract meaningful visual data insights. The course blends technical skill development with business acumen, enabling students to design and implement CV-based solutions for marketing, retail, manufacturing, and customer experience optimization. | | | | |
| **Course Outcomes** | **CO1** | **Understand:** Explain key concepts of image processing and computer vision | | | |
| | **CO2** | **Apply:** Computer vision tools to extract and analyze visual data | | | |
| | **CO3** | **Analyze:** Evaluate CV technologies for solving specific business problems | | | |
| | **CO4** | **Create:** Design and implement business solutions using computer vision models for decision making. | | | |

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| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITYSKILLS** by using **EXPERIENTIALLEARNING** techniques. | | |
| **Module 1** | **Business Relevance of Computer Vision and Industry** | Quiz (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics:** Computer vision: Concepts and business value, Overview of the vision pipeline: from image to insight, Vision use cases: Customer analytics, surveillance, automation, Image-based KPIs and ROI in computer vision projects, Ethical concerns: Surveillance, consent, and data misuse. | | | |
| **Module 2** | **Visual Data Interpretation and Analytical Storytelling** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Types of visual data: Static images, video, scanned documents, Feature extraction: Identifying what the model "sees", Object detection and counting for retail/warehousing, Image-based document digitization using OCR, Creating insights from annotated images. | | | |
| **Module 3** | **Business Applications of Vision-Driven AI Models** | Case (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Understanding pre-trained computer vision models, Product tagging and catalog automation, Facial expression recognition for customer satisfaction, Vision analytics in insurance, banking, and retail, Evaluating vendor dashboards and platform demos. | | | |
| **Module 4** | **Executive Dashboards and Capstone Project** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Communicating computer vision results in a business setting, Integrating vision data with traditional BI dashboards, Using Tableau or Power BI to visualize object counts, OCR results, etc., Creating a business case for vision deployment, Capstone: End-to-end simulation of a CV-based solution. | | | |
| **Targeted Application & Tools that can be used:** Python, Tensorflow | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study in<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Szeliski, R. (2010). *Computer Vision: Algorithms and Applications*. Springer. | | | |
| **Reference Books:**<br>**R1:** Bradski, G. & Kaehler, A. (2008). *Learning OpenCV: Computer Vision with the OpenCV Library*. O'Reilly Media.<br>**R2**: Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep Learning*. MIT Press. | | | |

**Online Resources:**
**https://presiuniv.knimbus.com/user#/home**

**Research Articles:**

**1. Suma, K. G., Patil, P., & Sunitha, G.** (2024). *Computer Vision and Its Intelligence in Industry 4.0*. IGI Global.https://www.researchgate.net/publication/387429378_Computer_Vision_and_Its_Intelligence_in_Industry

**2. Zhou, H. A., Wolfschläger, D., & Florides, C.** (2024). *Generative AI in Industrial Machine Vision – A Review*. *arXiv*. https://arxiv.org/abs/2402.12345

**3. Mansour, A. E., et al.** (2024). *AI and Computer Vision-based Real-time Quality Control: A Review of Industrial Applications*. *Procedia Computer Science, 231*, 212–220. https://www.sciencedirect.com/science/article/pii/S187705092302207X

**Multimedia (Videos):**

1. **Example Use Case for SAS Computer Vision Capabilities**
   https://www.youtube.com/watch?v=N2dQDC5goZI
   youtube.com+2imerit.net+2youtube.com+2youtube.comyoutube.com
2. **L-DIH Talks – Computer Vision for Industrial Applications**
   https://www.youtube.com/watch?v=IAhRtsV-M w0 youtube.com
3. **Common Production Issues That CV AI Can Solve!**
   https://www.youtube.com/watch?v=cmfVsQa4B6c

**Case Studies:**

**1:** Walmart – Shelf Inventory Monitoring
**2:** Coca-Cola – Brand Logo Detection in Social Media
**3:** BMW – Automated Visual Inspection in Manufacturing
**4:** Amazon Go – Computer Vision for Cashless Retailing
https://venturebeat.com/ai/walmart-opens-an-ai-powered-store-to-monitor-inventory-in-real-time
https://towardsdatascience.com/detecting-brand-logos-in-social-media-images-with-deep-learning-f7e80f4c5a7e
https://www.bmw.com/en/innovation/artificial-intelligence-production.html

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|---|---|
| **Catalogue prepared by** | **Dr. Varalakshmi Dandu** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

<table>
<tr><td rowspan="2">Course Code:<br>QNT5114</td><td rowspan="2">Course Title: AI and Machine Learning for Business Applications Type of Course: Specialization Track Elective Theory and Practical</td><td>L</td><td>T</td><td>P</td><td>C</td></tr>
<tr><td>2</td><td>0</td><td>2</td><td>3</td></tr>
<tr><td>Version No.</td><td colspan="5">1.0</td></tr>
<tr><td>Course Pre-requisites</td><td colspan="5">QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization</td></tr>
<tr><td>Anti-requisites</td><td colspan="5"></td></tr>
<tr><td>Course Description</td><td colspan="5">This course provides an applied understanding of Artificial Intelligence (AI) and Machine Learning (ML) in solving complex business problems. Learners will explore ML models, AI frameworks, and deployment strategies with hands-on exposure to Python, Scikit-learn, TensorFlow, and real-world datasets. The course emphasizes decision-making through predictive analytics and intelligent automation in domains such as marketing, finance, supply chain, and customer service.</td></tr>
<tr><td rowspan="4">Course Outcomes</td><td>CO1</td><td colspan="4">Understand Explain fundamental concepts and techniques in AI and ML relevant to business functions</td></tr>
<tr><td>CO2</td><td colspan="4">Apply machine learning algorithms to analyze structured and unstructured business data</td></tr>
<tr><td>CO3</td><td colspan="4">Evaluate model performance and optimize AI-driven business decision processes</td></tr>
<tr><td>CO4</td><td colspan="4">Create and deploy AI solutions for predictive analytics and business automation</td></tr>
<tr><td>Course Objective</td><td colspan="5">This course is designed to improve the learners' EMPLOYABILITY SKILLS by using EXPERIENTIAL LEARNING techniques.</td></tr>
<tr><td>Module 1</td><td>Foundations of AI and Machine Learning</td><td colspan="2">Quiz (Participative Learning)</td><td colspan="2">8 Sessions + 5 Practical</td></tr>
<tr><td colspan="6">Topics: Introduction to AI and ML concepts, Business applications: customer churn, fraud detection, forecasting, Supervised vs. unsupervised learning, Overview of ML algorithms: linear regression, decision trees, k-means, ML workflow and data pipelines.</td></tr>
<tr><td>Module 2</td><td>Business Problem-Solving with Predictive Modeling</td><td colspan="2">Assignment using E Library (Participative Learning)</td><td colspan="2">8 Sessions + 7 Practical</td></tr>
<tr><td colspan="6">Topics: Predictive analytics process in business, Buildin and validating regression and classification models, Overfitting, bias, and variance, Evaluation metrics: accuracy, precision, recall, F1-score, ROC curve, Use case: Customer lifetime value prediction.</td></tr>
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| **Module 3** | **Recommendation Systems and Business Personalization** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Recommendation systems: types and architecture, Collaborative vs. content-based filtering, Matrix factorization basics, Use cases in Netflix, Amazon, and Spotify, Ethics of algorithmic personalization. | | | |
| **Module 4** | **AI Deployment, Governance, and Strategic Impact** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Strategic planning for AI in business, AI project lifecycle and KPIs, Explainable AI (XAI) and ethical deployment, AI governance, data privacy, and compliance (GDPR, DPDP), Capstone project development and presentation. | | | |
| **Targeted Application & Tools that can be used:** Python, Scikit-learn, Pandas, TensorFlow, Keras, Power BI, Google Colab | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Géron, A. (2019). *Hands-On Machine Learning with Scikit-Learn, Keras & TensorFlow* (2nd Ed.). O'Reilly Media. | | | |
| **Reference Books:**<br>**R1**: Mitchell, T. (1997). *Machine Learning*. McGraw-Hill.<br>**R2**: Aggarwal, C. (2018). *Machine Learning for Business*. Springer.<br>**R3**: Provost, F., & Fawcett, T. (2013). *Data Science for Business*. O'Reilly. | | | |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br><br>**Research Articles:**<br><br>1. **Brynjolfsson, E., & McAfee, A. (2017)**. *Artificial Intelligence, for Real*. *Harvard Business Review*. https://hbr.org/2017/07/artificial-intelligence-for-the-real-world<br>2. **Davenport, T. H., Guha, A., Grewal, D., & Bressgott, T. (2020)**. *How Artificial Intelligence Will Change the Future of Marketing*. *Journal of the Academy of Marketing Science, 48*, 24–42. https://doi.org/10.1007/s11747-019-00696-0<br>3. **Shrestha, Y. R., Ben-Menahem, S. M., & von Krogh, G. (2019)**. *Organizational Decision-Making Structures in the Age of Artificial Intelligence*. *California Management Review, 61*(4), 66–83. https://doi.org/10.1177/000812561986225<br><br>**Multimedia (Videos):**<br>1. **How AI is changing business strategy** – Harvard Business School https://www.youtube.com/watch?v=6LYRgrqJgDc | | | |

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| 2. **Machine Learning in Business – Real Examples** – Data School<br>https://www.youtube.com/watch?v=2ePf9rue1Ao<br>3. **AI and the Future of Work** – World Economic Forum<br>https://www.youtube.com/watch?v=4B31g3icdrg<br><br>**Case Studies:**<br>1. **Netflix** – Content personalization using collaborative filtering<br>2. **Amazon** – Dynamic pricing and demand forecasting using ML<br>3. **HDFC Bank** – Fraud detection using classification algorithms<br>4. **Zara** – Inventory optimization using AI-driven analytics<br>5. **Unilever** – Talent acquisition using predictive AI models<br>https://towardsdatascience.com<br>https://www.kaggle.com<br>https://dataconomy.com | |
| **Catalogue prepared by** | **Dr. Varalakshmi Dandu** |
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|---|---|---|---|---|---|
| **Course Code:** QNT5115 | **Course Title:** Data Architecture and Database Systems<br>**Type of Course: Specialization Track Elective Theory and Practical** | **L**<br>**2** | **T**<br>**0** | **P**<br>**2** | **C**<br>**3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course introduces the principles of data architecture and database systems essential for managing modern data-driven businesses. It covers conceptual and logical database design, data modeling, relational databases, NoSQL databases, and cloud-based data management. Students will gain hands-on experience in SQL, ER modeling, normalization, and implementing database solutions for real-world business problems. | | | | |
| **Course Outcomes** | **CO1** | **Understand** the principles of data architecture and database system design | | | |

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| | **CO2** | **Apply** SQL and NoSQL techniques to store, retrieve, and manipulate business data | |
| | **CO3** | **Analyze** and design effective data models for enterprise systems | |
| | **CO4** | **Create** data solutions that align with business strategies | |
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITY SKILLS** by using **EXPERIENTIAL LEARNING** techniques. | | |
| **Module 1** | **Fundamentals of Data Architecture and Business Data Needs** | Quiz (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics:** Overview of data architecture and data strategy, Data lifecycle: creation, storage, processing, archival, Business challenges in data management, Introduction to relational databases and SQL, Entity Relationship Diagrams (ERDs) and data modeling. | | | |
| **Module 2** | **Relational Databases and SQL for Business Analytics** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: SQL basics: SELECT, WHERE, GROUP BY, ORDER BY, JOINs: INNER, LEFT, RIGHT, FULL OUTER, Subqueries, CASE WHEN, aliases, Aggregate functions: COUNT, SUM, AVG, MIN, MAX, Real-world data querying: HR, sales, finance datasets. | | | |
| **Module 3** | **Data Warehousing and Business Intelligence Integration** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** OLTP vs. OLAP systems, Data warehousing concepts and architecture, Star and snowflake schema design, ETL pipelines and data staging, Integration with BI tools like Power BI and Tableau. | | | |
| **Module 4** | **Modern Data Architecture – Cloud, NoSQL, and Governance** | Project (Experi | **7 Sessions** |

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| | | ential Learning) | **+ 9 Practical** |

**Topics:** NoSQL overview: document, key-value, columnar, graph databases, MongoDB and BigQuery use cases in business, Cloud data platforms: AWS Redshift, Azure Synapse, Google BigQuery, Data governance, privacy laws (GDPR, DPDP), and metadata management, Data lakes and lakehouse architecture overview.

**Targeted Application & Tools that can be used:** MySQL, PostgreSQL, MongoDB, Firebase, ERDPlus, DB Browser, Cloud SQL (AWS/GCP)

**Project work/Assignment:**

**Assignment 1:** Module 1 - Quiz

**Assignment 2:** Module 2 - Written Assignment

**Assignment 3:** Module 3 - Case study in

**Assignment 4:** Module 4 - Project Work

**Text Book:**

**T1:** Coronel, C., & Morris, S. (2019). *Database Systems: Design, Implementation, and Management* (13th Ed.). Cengage Learning.

**Reference Books:**

**R1**: Elmasri, R., & Navathe, S. (2015). *Fundamentals of Database Systems*. Pearson Education.

**R2**: Redmond, E., & Wilson, J. R. (2012). *Seven Databases in Seven Weeks*. Pragmatic Bookshelf.

**R3**: Kleppmann, M. (2017). *Designing Data-Intensive Applications*. O'Reilly Media.

**Online Resources:**

Presidency University Library Portal:
https://presiuniv.knimbus.com/user#/home
SQL Tutorial: https://www.w3schools.com/sql/
MongoDB University: https://university.mongodb.com/

**Research Articles:**

1. **Inmon, W. H. (2021)**. *The Evolution of Data Architecture for the Modern Enterprise*. *Journal of Data Management*, 23(1), 10–18. https://tdwi.org/articles/2021/02/15/adv-all-evolution-of-modern-data-architecture.aspx
2. **Khan, A., et al. (2020)**. *Data Lakes and Analytics Platforms: Benefits and Challenges*. *Information Systems Frontiers, 22*(2), 487–502. https://doi.org/10.1007/s10796-018-9847-7
3. **Abadi, D. J. (2016)**. *The Design and Implementation of Modern Column-Oriented Database Systems*. *Communications of the ACM, 59*(11), 118–127. https://cacm.acm.org/magazines/2016/11/209135-the-design-and-implementation-of-modern-column-oriented-database-systems/

**Multimedia (Videos):**

1. **Data Architecture Explained in Simple Terms** – Firebox Training https://www.youtube.com/watch?v=H3GizZgBEq0
2. **What is Data Warehouse? Data Warehouse Tutorial for Beginners** – Simplilearn https://www.youtube.com/watch?v=QpdhBUYk7Kk
3. **SQL Full Course for Beginners | Learn SQL in 4 Sessions** – Programming with Mosh https://www.youtube.com/watch?v=7S_tz1z_5bA

4. **NoSQL vs SQL: What's the Difference?** – Academind
   https://www.youtube.com/watch?v=ZS_kXvOeQ5Y

**Case Studies:**

**Netflix** – Using NoSQL (Cassandra) for scalable content delivery
https://netflixtechblog.com/benchmarking-cassandra-scalability-on-aws-over-a-million-writes-per-second-39f45f066c9e
**Uber** – PostgreSQL and Big Data for real-time ride management
https://eng.uber.com/schemaless-part-one/
**Amazon** – DynamoDB for scalable product data storage
https://aws.amazon.com/dynamodb/
**Zomato** – MySQL and sharding techniques for high-speed querying
https://engineering.zomato.com/how-we-scaled-zomatos-database-to-serve-traffic-from-24-countries-60c9b108fdd2
**Flipkart** – MongoDB adoption for managing user-generated reviews
https://www.mongodb.com/customers/flipkart

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|---|---|---|---|---|---|
| **Course Code: QNT5116** | **Course Title: Deep Learning Techniques and Applications**<br>**Type of Course: Specialization Track Elective** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course offers a comprehensive introduction to deep learning techniques and their practical applications in business. It focuses on artificial neural networks, convolutional neural networks (CNNs), recurrent neural networks (RNNs), and transfer learning, using industry-standard tools such as TensorFlow and Keras. Students will apply deep learning models to business problems such as customer behavior prediction, fraud detection, image recognition, and sentiment analysis. | | | | |

<table>
<tr><td rowspan="4">Course Outcomes</td><td>CO1</td><td colspan="2">Understand the theoretical foundations of deep learning and neural network architectures</td></tr>
<tr><td>CO2</td><td colspan="2">Apply deep learning techniques using TensorFlow/Keras for business-relevant data</td></tr>
<tr><td>CO3</td><td colspan="2">Analyze the performance of deep learning models and optimize them for business use</td></tr>
<tr><td>CO4</td><td colspan="2">Create end-to-end solutions involving real-world datasets using deep learning models</td></tr>
<tr><td>Course Objective</td><td colspan="3">This course is designed to improve the learners' EMPLOYABILITY SKILLS by using EXPERIENTIAL LEARNING techniques.</td></tr>
<tr><td>Module 1</td><td>Introduction to Deep Learning Concepts and Tools</td><td>Quiz (Participative Learning)</td><td>8 Sessions + 5 Practical</td></tr>
<tr><td colspan="4">Topics: Evolution from machine learning to deep learning, Artificial neural networks (ANN): structure and workflow, Activation functions: ReLU, Sigmoid, Tanh, Loss functions and optimizers, Introduction to TensorFlow and Keras platforms.</td></tr>
<tr><td>Module 2</td><td>Convolutional Neural Networks (CNNs) and Image-based Business Use Cases</td><td>Assignment using E Library (Participative Learning)</td><td>8 Sessions + 7 Practical</td></tr>
<tr><td colspan="4">Topics: CNN architecture: convolutional, pooling, and fully connected layers, Image classification pipeline, Use cases: facial recognition, product classification, defect detection, pre-trained models: VGG, ResNet, MobileNet, Transfer learning and fine-tuning.</td></tr>
<tr><td>Module 3</td><td>Recurrent Neural Networks (RNNs) and Sequence Data in Business Use cases</td><td>Case Study (Experiential Learning)</td><td>7 Sessions + 9 Practical</td></tr>
<tr><td colspan="4">Topics: Introduction to RNNs and LSTMs, Handling sequential and time-series data, Applications in forecasting and language modeling, Tokenization and embedding for text data, Use case: Customer sentiment analysis from reviews</td></tr>
<tr><td>Module 4</td><td>Advanced Applications, Ethics, and Capstone Project</td><td>Project (Experiential Learning)</td><td>7 Sessions + 9 Practical</td></tr>
<tr><td colspan="4">Topics: Deep learning in recommendation systems and anomaly detection, Introduction to Generative Adversarial Networks (GANs), Business risks of black-box models, Explainable AI (XAI) and model interpretability (SHAP, LIME), Capstone design and peer presentation.</td></tr>
<tr><td colspan="4">Targeted Application & Tools that can be used: Python, TensorFlow, Keras, Streamlit, Pandas, NumPy, Matplotlib, Scikit-learn</td></tr>
<tr><td colspan="4">Project work/Assignment:</td></tr>
<tr><td colspan="4">Assignment 1: Module 1 - Quiz<br>Assignment 2: Module 2 - Written Assignment<br>Assignment 3: Module 3 - Case study in</td></tr>
</table>

**Assignment 4:** Module 4 - Project Work

**Text Book:**

**T1:** Géron, A. (2022). *Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow* (3rd Ed.). O'Reilly Media.

**Reference Books:**

**R1**: Chollet, F. (2017). *Deep Learning with Python*. Manning Publications.

**R2**: Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep Learning*. MIT Press.

**R3**: Aggarwal, C. C. (2018). *Neural Networks and Deep Learning*. Springer.

**Online Resources:**

Presidency University Library Portal:
https://presiuniv.knimbus.com/user#/home
TensorFlow Tutorials: https://www.tensorflow.org/tutorials
Keras Documentation: https://keras.io/guides/

**Research Articles:**

1. **LeCun, Y., Bengio, Y., & Hinton, G. (2015)**. *Deep Learning*. *Nature, 521*(7553), 436–444. https://www.nature.com/articles/nature14539
2. **Chollet, F. (2017)**. *Deep Learning with Python*. *Manning Publications*. (Chapter excerpts & case studies)
   https://livebook.manning.com/book/deep-learning-with-python/about-this-book
3. **Brownlee, J. (2020)**. *How to Get Started with Deep Learning for Time Series Forecasting*. *Machine Learning Mastery*.
   https://machinelearningmastery.com/deep-learning-for-time-series-forecasting/

**Multimedia (Videos):**

1. **Deep Learning Crash Course (Simplilearn)**
   https://www.youtube.com/watch?v=aircAruvnKk
2. **Convolutional Neural Networks (CNNs) Explained – StatQuest**
   https://www.youtube.com/watch?v=FTr3n7uBIuE
3. **Recurrent Neural Networks and LSTM Explained – Simplilearn**
   https://www.youtube.com/watch?v=UNmqTiOnRfg
4. **How Businesses Use Deep Learning (McKinsey Tech Talks)**
   https://www.youtube.com/watch?v=ekDqjHjJYYE

**Case Studies:**

**Google Translate** – Neural Machine Translation with RNNs
https://ai.googleblog.com/2016/09/a-neural-network-for-machine.html
**Tesla** – Self-driving vision using CNNs
https://www.tesla.com/autonomy
**Amazon** – Product recommendation using deep learning embeddings
https://aws.amazon.com/personalize/
**HDFC Bank** – Fraud detection with LSTM networks
https://analyticsindiamag.com/hdfc-banks-use-of-analytics-machine-learning-explained/
**Swiggy/Zomato** – Menu image classification and sentiment analysis using CNN and NLP models
https://analyticsindiamag.com/what-is-swiggy-doing-in-ai-and-machine-learning/

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| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code: QNT5117** | **Course Title:** HealthTech and Pharma Analytics<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course provides an interdisciplinary understanding of analytics applications in the healthcare and pharmaceutical industries. Learners will explore health data systems, clinical trial analytics, predictive modeling for patient care, AI in diagnostics, drug discovery, and regulatory analytics. Students will use industry-relevant tools to derive insights from electronic health records (EHRs), claims data, and genomic data to support strategic and operational decisions. | | | | |
| **Course Outcomes** | **CO1** | **Understand** healthcare and pharmaceutical data ecosystems and analytics use cases | | | |
| | **CO2** | **Apply** statistical and machine learning methods to health and pharma datasets | | | |
| | **CO3** | **Analyze** patient behavior, treatment efficacy, and healthcare operations using analytical tools | | | |
| | **CO4** | **Create** data-driven solutions for public health, pharma supply chains, and personalized medicine | | | |

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| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITY SKILLS** by using **EXPERIENTIAL LEARNING** techniques. | | |
| **Module 1** | **Health and Pharma Data Ecosystems** | Quiz | **8 Sessions + 5 Practical** |
| **Topics**: Health and Pharma Data Ecosystems: EHRs, clinical data, real-world evidence, healthcare KPIs, ICD coding systems, HIPAA regulations. | | | |
| **Module 2** | **Analytics in Healthcare** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Descriptive and Predictive Analytics in Healthcare: Patient segmentation, readmission prediction, treatment optimization, anomaly detection. | | | |
| **Module 3** | **AI & ML Applications** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** AI & ML Applications in Pharma: Drug discovery analytics, clinical trial optimization, adverse event prediction, NLP for medical text. | | | |
| **Module 4** | **Business Cases and Capstone Project** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Business Cases and Capstone Project: Vaccine distribution analytics, pharma marketing ROI, population health modeling, dashboard creation. | | | |
| **Targeted Application & Tools that can be used:** Python, R, Tableau, Power BI, SQL, Scikit-learn, NLP Libraries (spaCy, NLTK), TensorFlow, Jupyter Notebook | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Reddy, C. K., & Aggarwal, C. (2015). *Healthcare Data Analytics*. CRC Press. | | | |
| Reference Books:<br>**R1**: Davenport, T. H., & Glaser, J. (2002). *Just-in-Time Delivery Comes to Knowledge Management*. Harvard Business Review.<br>**R2**: Bennett, C. C., & Hauser, K. (2013). *Artificial Intelligence Framework for Simulating Clinical Decision-Making*. Journal of Healthcare Engineering.<br>**R3**: Saria, S., Butte, A., & Sheikh, A. (2018). *Better Medicine Through Machine Learning*. PLOS Medicine. | | | |

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| **Online Resources:**<br>Presidency University Library Portal:<br>https://presiuniv.knimbus.com/user#/home<br>HealthIT.gov – Data Standards:<br>https://www.healthit.gov<br>FDA – Real World Evidence:<br>https://www.fda.gov/science-research/science-and-research-special-topics/real-world-evidence<br><br>**Research Articles:**<br><br>**Multimedia (Videos):**<br><br>**Case Studies:**<br>**Pfizer & IBM Watson** – AI in cancer drug discovery<br>https://www.ibm.com/watson-health/learn/ai-healthcare<br>**Apollo Hospitals** – Predictive analytics for cardiac risk detection<br>https://www.analyticsvidhya.com/blog/2021/09/apollo-hospitals-and-healthcare-ai-applications/<br>**NHS UK** – AI and ML in hospital readmission prediction<br>https://www.nature.com/articles/s41746-020-0251-7<br>**GSK** – Clinical trial data analytics<br>https://www.gsk.com/en-gb/media/press-releases/accelerating-clinical-data-analytics/<br>**WHO** – Population health analytics for disease surveillance<br>https://www.who.int/tools/global-health-observatory |

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| **Catalogue prepared by** | **Dr. Varalakshmi Dandu** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code: QNT5118** | **Course Title: Analytics-Driven Supply Chain Optimization**<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |

<table>
<tr><td>Course Description</td><td colspan="3">This course explores the application of advanced analytics techniques in optimizing supply chain performance across procurement, logistics, inventory, and demand forecasting. It provides hands-on exposure to data-driven decision-making using simulation, predictive modeling, network optimization, and real-time analytics. Students will develop skills to transform supply chains into responsive, agile, and data-intelligent systems.</td></tr>
<tr><td rowspan="4">Course Outcomes</td><td>CO1</td><td colspan="2">Understand the strategic role of analytics in supply chain management</td></tr>
<tr><td>CO2</td><td colspan="2">Apply data modeling and forecasting techniques for supply chain optimization</td></tr>
<tr><td>CO3</td><td colspan="2">Analyze logistics, inventory, and distribution data using analytical tools</td></tr>
<tr><td>CO4</td><td colspan="2">Create simulation and optimization models to enhance supply chain agility and efficiency</td></tr>
<tr><td>Course Objective</td><td colspan="3">This course is designed to improve the learners' EMPLOYABILITY SKILLS by using EXPERIENTIAL LEARNING techniques.</td></tr>
<tr><td>Module 1</td><td>Supply Chain Fundamentals & Data Landscape</td><td>Quiz (Participative Learning)</td><td>8 Sessions + 7 Practical</td></tr>
<tr><td colspan="4">Topics: Supply Chain Fundamentals & Data Landscape: SCOR model, KPIs, data sources, supplier-customer data integration, digital twins.</td></tr>
<tr><td>Module 2</td><td>Forecasting & Inventory Analytics</td><td>Assignment using E Library (Participative Learning)</td><td>8 Sessions + 7 Practical</td></tr>
<tr><td colspan="4">Topics: Forecasting & Inventory Analytics: Demand forecasting, time-series models, ABC analysis, EOQ, safety stock analytics.</td></tr>
<tr><td>Module 3</td><td>Logistics and Distribution Optimization</td><td>Case Study (Experiential Learning)</td><td>7 Sessions + 7 Practical</td></tr>
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| **Topics:** Logistics and Distribution Optimization: Route planning, network optimization, warehouse analytics, reverse logistics. | | | |
| **Module 4** | **Simulation & Decision Optimization** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Simulation & Decision Optimization: Linear programming, Monte Carlo simulation, supply chain dashboards, case-based capstone. | | | |
| **Targeted Application & Tools that can be used:** Excel Solver, R, Python, AnyLogic, Power BI, Tableau, Simul8, Supply Chain Guru, SQL. | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study in<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Chopra, S., & Meindl, P. (2020). *Supply Chain Management: Strategy, Planning, and Operation* (7th Ed.). Pearson Education. | | | |
| Reference Books:<br>**R1**: Simchi-Levi, D., Kaminsky, P., & Simchi-Levi, E. (2008). *Designing and Managing the Supply Chain*. McGraw-Hill.<br>**R2**: Stadtler, H., Kilger, C., & Meyr, H. (2015). *Supply Chain Management and Advanced Planning*. Springer.<br>**R3**: Ballou, R. H. (2003). *Business Logistics/Supply Chain Management*. Pearson Education. | | | |
| **Online Resources:**<br>□ Presidency University Library Portal:<br>https://presiuniv.knimbus.com/user#/home<br>□ Supply Chain Digital:<br>https://www.supplychaindigital.com<br>□ MIT Center for Transportation and Logistics:<br>https://ctl.mit.edu/<br><br>**Research Articles:**<br><br>**Multimedia (Videos):**<br><br>**Case Studies:**<br>**Walmart** – Inventory optimization using real-time analytics<br>https://hbr.org/2006/03/the-12-different-ways-for-companies-to-innovate<br>**Amazon** – Predictive logistics and warehouse robotics<br>https://supplychaindigital.com/logistics/inside-amazons-robot-powered-warehouses<br>**Unilever** – Demand forecasting with AI-driven platforms<br>https://www.forbes.com/sites/insights-intelai/2020/03/31/how-unilever-is-using-ai-to-forecast-demand/ | | | |

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| **DHL** – Route optimization using AI and IoT<br>https://www.dhl.com/content/dam/dhl/global/core/documents/pdf/glo-core-artificial-intelligence-in-logistics.pdf<br>**Flipkart** – Last-mile delivery efficiency using data analytics<br>https://analyticsindiamag.com/how-flipkart-uses-machine-learning-for-delivery-optimization/ |

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| **Catalogue prepared by** | **Dr. Varalakshmi Dandu** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
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|---|---|---|---|---|---|
| **Course Code: QNT5119** | **Course Title:** Text Analytics and Natural Language Processing<br>**Type of Course: Specialization Track Elective** | **L**<br>**2** | **T**<br>**0** | **P**<br>**2** | **C**<br>**3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course offers a comprehensive exploration of text analytics and natural language processing (NLP) techniques with applications in business intelligence, sentiment analysis, social media analytics, customer feedback mining, and automation. Students will learn to preprocess, analyze, and model textual data using Python libraries and machine learning models. Practical implementation focuses on deriving actionable insights from unstructured text in business contexts. | | | | |
| **Course Outcomes** | **CO1** | **Understand** the concepts, challenges, and workflow of text mining and NLP | | | |
| | **CO2** | **Apply** preprocessing and feature engineering techniques to textual datasets | | | |
| | **CO3** | **Analyze** unstructured business data using NLP tools and machine learning models | | | |

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| | **CO4** | **Create** business applications using sentiment analysis, topic modeling, and text classification | |
| **Course Objective** | To empower learners with **hands-on skills** in text analytics and natural language processing through **experiential learning**, enabling them to solve business problems involving large-scale unstructured text data. | | |
| **Module 1** | **Introduction to Text Analytics** | Quiz | **8 Sessions + 5 Practical** |
| **Topics**: Foundations of Text Analytics: Types of textual data, tokenization, stemming, lemmatization, stop words, POS tagging. | | | |
| **Module 2** | **Text Representation & Preprocessing** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Text Representation & Preprocessing: Bag of Words, TF-IDF, word embeddings, N-grams, vectorization techniques. | | | |
| **Module 3** | **NLP Techniques & Models** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** NLP Techniques and Models: Named Entity Recognition (NER), sentiment analysis, topic modeling (LDA), classification using Naive Bayes, SVM. | | | |
| **Module 4** | **Applications in Business Analytics** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Applications in Business Analytics: Social media analytics, feedback mining, chatbot NLP, fraud detection, document summarization. | | | |
| **Targeted Application & Tools that can be used:** Python, NLTK, spaCy, Scikit-learn, TextBlob, Gensim, Hugging Face Transformers, Google Colab | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |

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| **Text Book:**<br>**T1:** Raj, B., & Abhishek, M. (2021). *Text Analytics with Python: A Practical Real-World Approach to Gaining Actionable Insights from Your Data* (2nd Ed.). Apress. |
| Reference Books:<br>**R1**: Bird, S., Klein, E., & Loper, E. (2009). *Natural Language Processing with Python*. O'Reilly.<br>**R2**: Jurafsky, D., & Martin, J. H. (2021). *Speech and Language Processing* (3rd Ed.). Draft.<br>**R3**: Sarkar, D. (2016). *Text Analytics with Python*. Apress. |
| **Online Resources:**<br>1. Presidency University Library Portal: https://presiuniv.knimbus.com/user#/home<br>2. NLTK Tutorials: https://www.nltk.org/book/<br>3. Hugging Face Transformers: https://huggingface.co/transformers/<br><br>**Research Articles:**<br><br>**Multimedia (Videos):**<br><br>**Case Studies:**<br>1. **Netflix** – Text summarization for content metadata tagging https://netflixtechblog.com/tagged/nlp<br>2. **Zomato** – Sentiment analysis from customer reviews https://medium.com/swlh/sentiment-analysis-on-zomato-reviews-using-python-nlp-5f8493ebc23f<br>3. **Amazon** – Customer feedback mining for product improvement https://towardsdatascience.com/applying-nlp-to-analyze-amazon-reviews-using-python-71efb491dfa0<br>4. **HDFC Bank** – Chatbot analytics and NER for customer service https://analyticsindiamag.com/hdfc-banks-use-of-analytics-machine-learning-explained/<br>5. **Twitter** – Trend analysis and political sentiment detection https://monkeylearn.com/blog/sentiment-analysis-twitter/ |

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| **Catalogue prepared by** | **Dr. Varalakshmi Dandu** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
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| **Course Code: QNT5120** | **Course Title:** MarTech and AdTech in Practice<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical** | **L** | **T** | **P** | **C** |
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| | | **2** | **0** | **2** | **3** |

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| **Version No.** | 1.0 | | |
| **Course Pre-requisites** | MKT4111: Marketing Management - Theories and Practices | | |
| **Anti-requisites** | | | |
| **Course Description** | This course offers a comprehensive overview of Marketing Technology (MarTech) and Advertising Technology (AdTech) ecosystems. Learners will explore how businesses leverage data-driven tools for customer acquisition, personalization, campaign automation, ad targeting, media buying, and performance measurement. The course includes hands-on experience with tools like Google Ads, Meta Ads Manager, CRM platforms, and programmatic advertising software. | | |
| **Course Outcomes** | **CO1** | **Understand** the MarTech and AdTech ecosystems, platforms, and key functions | |
| | **CO2** | **Apply** data-driven tools to design and execute personalized marketing and ad campaigns | |
| | **CO3** | **Analyze** campaign performance and customer journeys using CRM and analytics tools | |
| | **CO4** | **Create** integrated MarTech-AdTech strategies for improved ROI and omni channel marketing | |
| **Course Objective** | To prepare learners to design, execute, and analyze **technology-enabled marketing and advertising strategies** through **experiential learning** and practical tool-based implementation. | | |
| **Module 1** | **Introduction to MarTech & AdTech** | Quiz (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics**: Introduction to MarTech & AdTech: Ecosystem overview, CDPs vs. CRMs, DMPs, SSPs, DSPs, cookies, tracking pixels. | | | |
| **Module 2** | **Marketing Automation & CRM** | Assignment using E Library (Participati | **8 Sessions + 7 Practical** |

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| | | ve Learning) | |
| **Topics**: Marketing Automation & CRM: Tools like HubSpot, Salesforce, personalization, customer lifecycle management, lead scoring. | | | |
| **Module 3** | **AdTech Platforms & Programmatic Advertising** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** AdTech Platforms & Programmatic Advertising: Real-time bidding, Google Ads, Meta Ads, retargeting, A/B testing, geo-targeting. | | | |
| **Module 4** | **Analytics & Campaign Optimization** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Analytics & Campaign Optimization: Attribution models, ad fraud prevention, ROI dashboards, AI in MarTech-AdTech. | | | |
| **Targeted Application & Tools that can be used** Google Ads, Meta Ads Manager, HubSpot, Salesforce, Zoho CRM, Mailchimp, Google Tag Manager, Hotjar, SEMrush, Tableau, Power BI | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Scott Brinker. (2023). *Marketing Technology Landscape Supergraphic*. Chiefmartec.com. | | | |
| Reference Books:<br>**R1**: Kotler, P., Kartajaya, H., & Setiawan, I. (2021). *Marketing 5.0: Technology for Humanity*. Wiley.<br>**R2**: Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital Marketing* (7th Ed.). Pearson.<br>**R3**: Ryan, D. (2016). *Understanding Digital Marketing*. Kogan Page. | | | |
| **Online Resources:**<br>1. Presidency University Library Portal: https://presiuniv.knimbus.com/user#/home<br>2. ChiefMartec Blog: https://chiefmartec.com<br>3. Google Ads Help: https://support.google.com/google-ads<br>4. HubSpot Academy: https://academy.hubspot.com<br>5. Meta for Business: https://www.facebook.com/business/learn<br><br>**Research Articles:** | | | |

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| **Multimedia (Videos):**<br><br>**Case Studies:**<br>1. **Nike** – Personalization at scale using MarTech stack https://www.cio.com/article/243911/how-nike-is-transforming-marketing-technology.html<br>2. **Spotify** – Programmatic audio advertising and personalization https://ads.spotify.com/en-US/news-and-insights/spotify-advertising-case-studies/<br>3. **Coca-Cola** – CRM and cross-channel automation for campaigns https://www.salesforce.com/in/customer-success-stories/coca-cola/<br>4. **Amazon** – AdTech strategy with audience targeting and DSP https://advertising.amazon.com/en/help/glossary/demand-side-platform-dsp<br>5. **Lenskart** – Omnichannel MarTech implementation in India https://www.livemint.com/technology/tech-news/how-lenskart-is-using-technology-to-scale-operations-11607366373916.html |

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| **Catalogue prepared by** | **Dr. Varalakshmi Dandu** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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| **Course Code: QNT5125** | **Course Title:** BFSI Analytics<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111: Applied Business Statistics<br>QNT4112: Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course explores the use of analytics in the Banking, Financial Services, and Insurance (BFSI) sector. It equips students with the skills to analyze financial data, detect fraud, assess credit risk, optimize customer value, and support regulatory compliance. Learners will use statistical tools and machine learning techniques to solve real-world BFSI problems and gain experience with industry-standard platforms for risk and financial analytics. | | | | |
| **Course Outcomes** | **CO1** | **Understand** the analytics lifecycle within banking, financial, and | | | |

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| | | insurance services | |
| | **CO2** | **Apply** predictive analytics techniques to assess credit risk, customer churn, and loan defaults | |
| | **CO3** | **Analyze** financial and transactional data using advanced analytical tools | |
| | **CO4** | **Create** data-driven solutions for fraud detection, portfolio optimization, and customer segmentation | |
| **Course Objective** | To enable learners to apply **analytics in financial decision-making**, **risk modeling**, and **compliance monitoring** through hands-on experience with real-world datasets and platforms used in the BFSI domain. | | |
| **Module 1** | **BFSI Sector Overview** | Quiz (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics**: BFSI Sector Overview & Data Landscape: Core banking, insurance systems, payment ecosystems, financial KPIs, compliance data | | | |
| **Module 2** | **Credit Risk and Customer Analytics** | Assignment using E Librar | **8 Sessions + 7 Practical** |

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| | | y (Participative Learning) | |
| **Topics**: Credit Risk and Customer Analytics: Credit scoring, churn prediction, customer value segmentation, predictive models | | | |
| **Module 3** | **Fraud Detection and Regulatory Analytics** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Fraud Detection and Regulatory Analytics: Anomaly detection, anti-money laundering (AML), Basel compliance, audit trails. | | | |
| **Module 4** | **Portfolio and Insurance Analytics** | Class activity (Project Work) | **7 Sessions + 9 Practical** |
| **Topics:** Portfolio and Insurance Analytics: Investment analysis, claims prediction, solvency modeling, project dashboard. | | | |
| **Targeted Application & Tools that can be used:** Python, R, SAS, Power BI, Tableau, SQL, Scikit-learn, XGBoost, Alteryx | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Naresh Malhotra & Satya Bhushan Dash. (2025). *Marketing Research: An Applied Orientation with BFSI Case Studies*. Pearson. | | | |
| **Reference Books:**<br>**R1**: Baesens, B. (2014). *Analytics in a Big Data World: The Essential Guide to Data Science and its Applications*. Wiley.<br>**R2**: James, G., Witten, D., Hastie, T., & Tibshirani, R. (2021). *An Introduction to Statistical Learning*. Springer. | | | |
| **Online Resources:**<br>Presidency University Library Portal:<br>https://presiuniv.knimbus.com/user#/home | | | |

RBI Publications:
https://www.rbi.org.in
World Bank Financial Data:
https://databank.worldbank.org/source/financial-inclusion

**Research Articles:**

1. https://academic.oup.com/jrsssa/article-pdf/160/3/523/49760733/jrsssa_160_3_523.pdf

2. https://www.researchgate.net/publication/368824037_USE_OF_BIG_DATA_ANALYTICS_IN_BANKING_INDUSTRY

3. https://www.emerald.com/insight/content/doi/10.1108/jeim-05-2020-0176/full/html

**Multimedia (Videos):**

1. https://www.youtube.com/watch?v=2A_2AzaA-zI&list=PL_sAZbXvtzYIQrP06zyJqmqhELMynzWI4

2. https://www.youtube.com/watch?v=VEb7Zs6Cfh8

3. https://www.youtube.com/watch?v=hHthCn_XjVk

**Case Studies:**

**HDFC Bank** – Credit risk modeling using ML
https://analyticsindiamag.com/hdfc-banks-use-of-analytics-machine-learning-explained/
**ICICI Lombard** – Predictive analytics in claims and underwriting
https://www.icicilombard.com/blogs/health-insurance/hi/how-data-analytics-is-helping-the-health-insurance-industry
**SBI** – Customer segmentation and CRM analytics
https://www.sbi.co.in/web/about-us/analytics
**Axis Bank** – Fraud analytics and AML compliance
https://www.analyticsvidhya.com/blog/2021/03/how-axis-bank-uses-data-science/
**LIC India** – Mortality and solvency analytics
https://www.licindia.in/Bottom-Links/Financials

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| **Catalogue prepared by** | **Dr. Srikanth Reddy** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
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| **Course Code: QNT5126** | **Course Title:** Retail Marketing Analytics<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical** | **L** | **T** | **P** | **C** |
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| | | **2** | **0** | **2** | **3** |

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| **Version No.** | 1.0 | | |
| **Course Pre-requisites** | MKT4111: Marketing Management - Theories and Practices<br>QNT4112: Applied Data Analysis and Visualization | | |
| **Anti-requisites** | | | |
| **Course Description** | This course focuses on the application of analytics in the retail marketing domain. It helps students understand how retail businesses use data to drive merchandising decisions, inventory planning, customer segmentation, campaign optimization, and loyalty strategies. Learners will apply statistical and machine learning techniques to real-world retail datasets using analytics tools to derive actionable business insights. | | |
| **Course Outcomes** | **CO1** | **Understand** the use of analytics in solving retail marketing problems | |
| | **CO2** | **Apply** techniques for customer segmentation, sales forecasting, and pricing analysis | |
| | **CO3** | **Analyze** customer behavior, basket size, churn, and loyalty using retail data | |
| | **CO4** | **Create** data-driven strategies for personalized marketing, inventory optimization, and store performance tracking | |
| **Course Objective** | To equip learners with the skills to analyze **retail marketing data** and make **data-driven decisions** using advanced analytics techniques and tools. | | |
| **Module 1** | **Retail Analytics Landscape** | Quiz (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics**: Retail Analytics Landscape: Retail KPIs, POS systems, retail data sources, retail channel analytics, consumer decision journey | | | |
| **Module 2** | **Customer and Product Analytics** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Customer and Product Analytics: Segmentation, RFM analysis, market basket analysis, product affinity, churn prediction | | | |
| **Module 3** | **Inventory Optimization** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |

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| **Topics:** Pricing, Promotion, and Inventory Optimization: Markdown pricing, sales forecasting, ABC analysis, campaign ROI | | | |
| **Module 4** | **Advanced Applications** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Advanced Applications and Capstone: Store performance dashboards, omnichannel retail analytics, personalization, use of AI/ML | | | |
| **Targeted Application & Tools that can be used** Python, R, Power BI, Tableau, Excel Solver, RapidMiner, SQL, Orange, Google Analytics | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1**: Module 1 – Quiz on Retail KPIs and Data<br>**Assignment 2**: Module 2 – Customer Segmentation and Basket Analysis<br>**Assignment 3**: Module 3 – Pricing Optimization Project<br>**Assignment 4**: Module 4 – Capstone: Store or Campaign Analytics Dashboard | | | |
| **Text Book:**<br>**T1:** Cox, E. (2011). Retail analytics: The secret weapon (1st ed.). Wiley. | | | |
| **Reference Books:**<br>**R1**: Kumar, V., & Reinartz, W. (2018). *Customer Relationship Management*. Springer.<br>**R2**: Davenport, T. H. (2006). *Competing on Analytics*. Harvard Business Press. | | | |
| **Online Resources:**<br>Presidency University Library Portal:<br>https://presiuniv.knimbus.com/user#/home<br>McKinsey on Retail:<br>https://www.mckinsey.com/industries/retail<br>Harvard Business Review Retail Articles:<br>https://hbr.org/topic/retail<br><br>**Research Articles:**<br>1. https://www.researchgate.net/profile/Sudeep-Chandramana/publication/323309092_Retail_Analytics_Driving_Success_in_Retail_Industry_with_Business_Analytics/links/5a8d4ad5a6fdcc786eb06cf9/Retail-Analytics-Driving-Success-in-Retail-Industry-with-Business-Analytics.pdf<br>2. https://www.emerald.com/insight/content/doi/10.1108/sd-04-2021-0039/full/html<br>3. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5068349<br><br>**Multimedia (Videos):**<br>1. https://www.youtube.com/watch?v=6WXgqkTsv0k<br>2. https://www.youtube.com/watch?v=ZoAtxdXZAKk<br>3. https://www.youtube.com/watch?v=mJWfdHVbRFk<br><br>**Case Studies:**<br>**Walmart** – Demand forecasting and shelf optimization<br>https://hbr.org/2010/11/the-future-of-retail | | | |

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| **Zara** – Inventory planning through data analytics<br>https://www.mckinsey.com/industries/retail/our-insights/zara-it-for-fast-fashion<br>**Amazon** – Personalized recommendations using retail analytics<br>https://aws.amazon.com/retail/analytics/<br>**Reliance Retail** – Customer profiling and regional campaign strategies<br>https://www.analyticsvidhya.com/blog/2022/01/how-reliance-uses-data-analytics-in-retail/<br>**Big Bazaar** – Pricing and promotion analytics for footfall optimization<br>https://www.indianretailer.com/article/technology/digital-trends/how-big-bazaar-is-transforming-with-retail-analytics.a6781/ | |
| **Catalogue prepared by** | **Dr. N Srikanth Reddy** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code:** QNT5127 | **Course Title:** IoT and Sensor Data Analytics<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical Course** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course introduces the fundamentals of the Internet of Things (IoT) and techniques to analyze sensor-generated data for business applications. It covers IoT architecture, data collection, transmission, and analytics using real-time sensor data streams, providing a foundation to design and evaluate IoT solutions that drive strategic decision-making in various industries. | | | | |
| **Course Outcomes** | **CO1** | **Understand** the architecture, devices, and protocols that enable IoT ecosystems. | | | |
| | **CO2** | **Apply** IoT technologies for sensor integration, data acquisition, and processing. | | | |
| | **CO3** | **Analyze** sensor-generated data using analytics frameworks and tools. | | | |

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| | **CO4** | **Create** business solutions using real-time sensor data for operational efficiency and strategic insight. | |
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITYSKILLS** by using **EXPERIENTIAL LEARNING** techniques. | | |
| **Module 1** | **Introduction to IoT and Smart Systems** | Quiz | **8 Sessions + 5 Practical** |
| **Topics:** Introduction to IoT – IoT Applications in Business – Components of IoT Systems – Architecture Layers (Perception, Network, Application) – Business Value of IoT – Ethical and Security Concerns. | | | |
| **Module 2** | **IoT Devices and Sensor Technologies** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Types of Sensors – Actuators – Microcontrollers (Arduino, Raspberry Pi) – Communication Protocols (ZigBee, Bluetooth, Wi-Fi, MQTT) – Interfacing Sensors – Data Transmission Techniques. | | | |
| **Module 3** | **Sensor Data Management and Storage** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Data Acquisition and Sampling – Edge vs Cloud Processing – IoT Data Formats (JSON, CSV) – Sensor Data Cleaning – Time-Series Data Storage – IoT Platforms (ThingSpeak, Azure IoT, AWS IoT Core). | | | |
| **Module 4** | **Data Analytics for Sensor Data** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Descriptive and Exploratory Analysis – Time-Series Analysis – Real-time Data Visualization – Anomaly Detection – Predictive Modeling with Sensor Data – Stream Analytics using Python or Power BI. | | | |
| **Targeted Application & Tools that can be used:**<br>Python (Pandas, Matplotlib, Scikit-learn), Power BI, Excel for Sensor Dashboards | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |

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| **Text Book:**<br>**T1:** Bahga, A., & Madisetti, V. (2015). *Internet of Things: A Hands-On Approach*. Universities Press. |
| **Reference Books:**<br>**R1:** Geng, H. (Ed.). (2016). *Internet of things and data analytics handbook* (1st ed.). Wiley<br>**R2:** Hariharan, M. S. (n.d.). *IoT data analytics using Python*. BPB Publications. |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br><br>**Research Articles:**<br>1. https://www.sciencedirect.com/science/article/pii/S2666603020300294<br>2. https://www.mdpi.com/journal/sensors/special_issues/IoTDA2020<br>3. https://journalofbigdata.springeropen.com/articles/10.1186/s40537-019-0268-2<br><br>**Multimedia (Videos):**<br>1. https://www.youtube.com/watch?v=9wq4HzEH0uQ<br>2. https://www.youtube.com/watch?v=8jUvdL_XhUQ<br>3. https://www.youtube.com/watch?v=U6n6NcQDIMs<br><br>**Case Studies:**<br>1. IoT in Smart Cities: Barcelona's Connected Infrastructure<br>2. Predictive Maintenance using IoT in Manufacturing – GE Aviation<br>3. IoT in Logistics: DHL's Sensor-Based Tracking<br>4. Healthcare Monitoring through Wearable IoT Devices – Fitbit Case |

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| **Catalogue prepared by** | **Dr. N Srikanth Reddy** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code:** QNT5128 | **Course Title:** FinTech and Blockchain Analytics<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical Course** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics | | | | |
| **Anti-requisites** | | | | | |

<table>
<tr><td>Course Description</td><td colspan="3">This course provides a strategic and analytical understanding of emerging FinTech innovations and blockchain technologies. Learners will explore the evolving digital financial ecosystem, including cryptocurrencies, decentralized finance (DeFi), robo-advisors, and payment systems. Emphasis is placed on blockchain data analytics and how it informs decision-making in financial services.</td></tr>
<tr><td rowspan="4">Course Outcomes</td><td>CO1</td><td colspan="2">Understand the components and technologies shaping the FinTech ecosystem.</td></tr>
<tr><td>CO2</td><td colspan="2">Apply blockchain principles to evaluate decentralized systems and crypto assets.</td></tr>
<tr><td>CO3</td><td colspan="2">Analyze financial and blockchain data using analytics tools and models.</td></tr>
<tr><td>CO4</td><td colspan="2">Create business insights using real-time FinTech and blockchain applications.</td></tr>
<tr><td>Course Objective</td><td colspan="3">This course is designed to improve the learners' EMPLOYABILITYSKILLS by using EXPERIENTIAL LEARNING techniques.</td></tr>
<tr><td>Module 1</td><td>Foundations of FinTech and Digital Finance</td><td>Quiz (Participative Learning)</td><td>8 Sessions + 5 Practical</td></tr>
<tr><td colspan="4">Topics: Introduction to FinTech – Evolution of Digital Finance – RegTech, InsurTech, WealthTech – FinTech Business Models – FinTech Disruptions in Banking and Capital Markets – Digital Lending, Digital Payments – Regulatory Landscape.</td></tr>
<tr><td>Module 2</td><td>Blockchain Technology and Cryptocurrency</td><td>Assignment using E Library (Participative Learning)</td><td>8 Sessions + 7 Practical</td></tr>
<tr><td colspan="4">Topics: Blockchain Architecture – Consensus Mechanisms – Smart Contracts – Distributed Ledger Technologies (DLT) – Introduction to Bitcoin, Ethereum – Wallets and Exchanges – Security, Privacy and Regulatory Considerations.</td></tr>
<tr><td>Module 3</td><td>Blockchain Analytics</td><td>Case Study (Experienti</td><td>7 Sessions</td></tr>
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| | | al Learning) | **+ 9 Practical** |
| **Topics:** Understanding Blockchain Data – Public Block Explorers (e.g., Etherscan) – Transaction Analytics – Wallet Tracking – Blockchain Network Analysis – Applications in AML, KYC, and Fraud Detection – On-chain vs Off-chain Data. | | | |
| **Module 4** | **Data Analytics in FinTech** | Project (Experienti al Learning) | **7 Sessions + 9 Practical** |
| **Topics:** FinTech Data Sources – Predictive Models in Credit Scoring – Risk Modeling – Customer Segmentation – Robo-Advisory Systems – Sentiment Analysis in Crypto Markets – Real-time Payment and Transaction Analytics. | | | |
| **Targeted Application & Tools that can be used:**<br>Python (for crypto and financial analytics)<br>Power BI / Tableau for visualization<br>Google Colab, Excel for Financial Modeling | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Schueffel, P. (2020). *The FinTech Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries*. Wiley. | | | |
| **Reference Books:**<br>**R1:** Mougayar, W. (2016). *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology*. Wiley.<br>**R2:** Tapscott, D., & Tapscott, A. (2016). *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World*. Penguin.<br>**R3:** Iman, N. (2022). *FinTech and RegTech in a Nutshell, and the Future in a Sandbox*. Springer. | | | |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br><br>**Research Articles:**<br>1. https://www.sciencedirect.com/science/article/pii/S2772485922000606<br>2. https://jfin-swufe.springeropen.com/articles/10.1186/s40854-023-00469-3<br>3. https://dl.acm.org/doi/abs/10.1145/3531056.3531068<br><br>**Multimedia (Videos):**<br>1. https://www.youtube.com/watch?v=tmDrZAECvfA<br>2. https://www.youtube.com/watch?v=n41dE9Z9_NI<br>3. https://www.youtube.com/watch?v=puN2la6L5qU | | | |

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| **Case Studies:**<br>1. Paytm's Role in Transforming India's Digital Payments<br>2. Ethereum Gas Fees and Smart Contract Use in DeFi<br>3. Blockchain Analytics in Fraud Detection – Chainalysis Case<br>4. The Rise of Robo-Advisors: Betterment and Wealthfront | |
| **Catalogue prepared by** | **Dr. T S Edwin** |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code:** QNT5129 | **Course Title:** Strategic HR Analytics<br>**Type of Course: Specialization Track Elective Theory and Practical Course** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>OBH4111 Human Behavior in Organizations | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course introduces students to the strategic application of HR analytics to drive data-informed decisions within organizations. By integrating quantitative methods with HR practices, the course enables learners to link HR metrics to business outcomes, predict workforce trends, and enhance decision-making. Students will use tools such as Excel, Power BI, R, or Python to visualize, interpret, and communicate HR data insights. | | | | |
| **Course Outcomes** | **CO1** | **Understand** the role of HR analytics in strategic decision-making | | | |
| | **CO2** | **Apply** statistical tools to analyze and interpret HR data | | | |
| | **CO3** | **Analyze** workforce metrics and identify trends to support strategic initiatives | | | |
| | **CO4** | **Create** HR dashboards and predictive models to support talent management and organizational effectiveness | | | |
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITYSKILLS** by using **EXPERIENTIALLEARNING** techniques. | | | | |

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|---|---|---|---|
| **Module 1** | **Introduction to Strategic HR Analytics** | Quiz (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics:** Introduction to HR Analytics; Evolution from operational to strategic HR analytics; Strategic workforce planning; Metrics and KPIs in HR; Data sources in HRIS Tools: MS Excel, Power BI basics | | | |
| **Module 2** | **Data Analysis for HR Decision-Making** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Descriptive analytics; Statistical analysis of HR data; Visualization techniques; Employee turnover, retention, and engagement metrics Tools: Excel, Tableau / Power B | | | |
| **Module 3** | **Predictive Analytics in HR** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Regression and classification models; Attrition prediction; Performance modeling; Sentiment analysis from employee feedback. Tools: R / Python (pandas, scikit-learn) | | | |
| **Module 4** | **Strategic Applications & Capstone Project** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Aligning HR analytics with business strategy; Talent acquisition analytics; Succession planning; Building HR analytics dashboards. Tools: Power BI or Tableau. Hands-on Project: Real-world HR problem and analytics solution presentation | | | |
| **Targeted Application & Tools that can be used:** Python, Tensorflow | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Fitz-enz, J., & Mattox, J. R. (2014). *Predictive Analytics for Human Resources.* Wiley**.** | | | |
| **Reference Books:**<br>**R1:** Pease, G., Beresford, B., & Walker, L. (2014). *Human Capital Analytics.* Wiley<br>**R2**: Marr, B. (2018). *Data-Driven HR: How to Use Analytics and Metrics to Drive Performance.* Kogan Page | | | |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br><br>**Research Articles:**<br>1. Bridging the Gap: Why, How and When HR Analytics Can Impact Organizational Performance; Steven McCartney and Na Fu (2022)<br><br>2. The Role of HR Analytics in Strategic Decision-Making: A Systematic Literature Review; Ahmad Solihin (2024) | | | |

3. HR Data Analytics and Evidence-Based Practice as a Strategic Business Partner; B.S. Patil and M.R.S.R. Priya (2024)

**Multimedia (Videos):**

1. https://www.youtube.com/watch?v=5MtyabqzoSo
2. https://www.youtube.com/watch?v=MyKbMmyg3Eo
3. https://www.youtube.com/watch?v=5fh5IAFWeiU

**Case Studies:**

**1:** Walmart – Shelf Inventory Monitoring
**2:** Coca-Cola – Brand Logo Detection in Social Media
**3:** BMW – Automated Visual Inspection in Manufacturing
**4:** Amazon Go – Computer Vision for Cashless Retailing

https://venturebeat.com/ai/walmart-opens-an-ai-powered-store-to-monitor-inventory-in-real-time
https://towardsdatascience.com/detecting-brand-logos-in-social-media-images-with-deep-learning-f7e80f4c5a7e
https://www.bmw.com/en/innovation/artificial-intelligence-production.html

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| **Catalogue prepared by** | Dr. S Suresh Kumar |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| **Course Code:** QNT5130 | **Course Title:** Digital and Social Media Analytics<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical Course** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4112 Applied Data Analysis and Visualization<br>MKT4112 Digital Marketing Strategy, Tools and Trends | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course equips learners with analytical tools and frameworks to extract insights from digital and social media data. It emphasizes the strategic use of analytics to measure campaign effectiveness, track customer engagement, and optimize online marketing performance across platforms. Practical exposure to web and social analytics tools is integral to this course. | | | | |
| **Course Outcomes** | **CO1** | Understand the role of analytics in digital and social media marketing. | | | |

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| | **CO2** | Apply metrics and KPIs to assess the performance of digital campaigns. | |
| | **CO3** | Analyze data from web and social media platforms using analytics tools. | |
| | **CO4** | Create data-driven marketing insights for improved customer engagement and ROI. | |
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITY SKILLS** by using **EXPERIENTIAL LEARNING** techniques. | | |
| **Module 1** | **Foundations of Digital and Social Media Analytics** | Quiz (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics:** Importance of Analytics in Digital Marketing – Evolution of Social Media and Web Analytics – Types of Digital Metrics – Understanding KPIs – Introduction to Google Analytics and Facebook Insights – Ethical Considerations in Data Use. | | | |
| **Module 2** | **Tools and Techniques in Digital Analytics** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Setting up Analytics Tools (Google Analytics, Meta Business Suite) – Tagging and Tracking – UTM Parameters – Data Collection and Filtering – Dashboard Creation – Introduction to Google Tag Manager. | | | |
| **Module 3** | **Social media Listening and Sentiment Analysis** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Social media Listening Platforms (Hootsuite, Brandwatch) – Hashtag and Keyword Tracking – Sentiment Analysis Techniques – Brand Engagement Metrics – Case Studies in Social Media Campaigns. | | | |
| **Module 4** | **Data Interpretation and Visualization** | Project (Experiential Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Audience Behavior and Engagement Metrics – Funnel Analysis – Cohort Analysis – Attribution Models – Custom Reports and Visual Dashboards using Google Data Studio / Power BI. | | | |
| **Targeted Application & Tools that can be used:** Google Analytics (GA4), Meta Business Suite (Facebook & Instagram Insights), Twitter Analytics, LinkedIn Analytics, Google Tag Manager, Power BI, Hootsuite, Brandwatch (for listening and monitoring) | | | |
| **Project work/Assignment:** | | | |

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| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work |
| **Text Book:**<br>**T1:** Marshall, G., & Johnston, M. (2022). *Digital Marketing Analytics: Making Sense of Consumer Data in a Digital World*. Pearson. |
| **Reference Books:**<br>**R1:** Tuten, T. L., & Solomon, M. R. (2020). *Social Media Marketing*. Sage.<br>**R2**: Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital Marketing* (7th ed.). Pearson |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br><br>**Research Articles:**<br>1.https://www.researchgate.net/publication/342511503_Digital_Analytics_Modeling_for_Insights_and_New_Methods<br>2. https://www.jisem-journal.com/download/a-review-of-usage-and-applications-of-social-media-analytics-10958.pdf<br>3.https://www.researchgate.net/publication/259148570_The_Power_of_Social_Media_Analytics<br><br>**Multimedia (Videos):**<br>1. http://www.youtube.com/watch?v=aEsWltLmPfc<br>2. http://www.youtube.com/watch?v=yDUIzn77DL4<br>3. http://www.youtube.com/watch?v=Pn82AJme0_o<br><br>**Case Studies:**<br>1**:** Nike's Campaign Optimization using Web Analytics<br>2. Starbucks' Sentiment Analysis on Social Media Feedback<br>3. Netflix Personalization through Audience Behavior Analytics<br>4. Airbnb's Use of Data to Improve Marketing Funnel Conversion |

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|---|---|---|---|---|---|
| **Course Code:** QNT5131 | **Course Title:** Risk and Fraud Analytics<br>**Type of Course: Specialization Track Elective**<br>**Theory and Practical Course** | **L** | **T** | **P** | **C** |
| | | **2** | **0** | **2** | **3** |

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|---|---|---|---|
| **Version No.** | 1.0 | | |
| **Course Pre-requisites** | QNT4113 Business Research and Analytics<br>FIN4112 Financial Modelling and Corporate Finance | | |
| **Anti-requisites** | | | |
| **Course Description** | This course provides a comprehensive understanding of risk identification and fraud detection using data analytics techniques. It equips learners to apply statistical, machine learning, and business intelligence tools to detect anomalies, assess financial risks, and prevent fraud across various domains such as banking, insurance, and e-commerce. | | |
| **Course Outcomes** | **CO1** | **Understand key concepts in enterprise risk and fraud detection.** | |
| | **CO2** | **Apply metrics and KPIs to assess the performance of digital campaigns.** | |
| | **CO3** | **Analyze financial and operational data for risk profiling and fraud prevention.** | |
| | **CO4** | **Create dashboards and predictive models to monitor and mitigate organizational risk.** | |
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITY SKILLS** by using **EXPERIENTIAL LEARNING** techniques. | | |
| **Module 1** | **Introduction to Risk and Fraud** | Quizusing E Library (Participative Learning) | **8 Sessions + 5 Practical** |
| **Topics:** Types of Business Risks – Fraud Triangle – Regulatory Frameworks – Financial and Operational Risk – Role of Analytics in Risk and Fraud Management – Case Examples from BFSI and E-commerce. | | | |
| **Module 2** | **Data Preparation for Risk and Fraud Analytics** | Assignment using E Library (Participative Learning) | **8 Sessions + 7 Practical** |
| **Topics**: Data Collection and Cleaning – Handling Missing or Duplicate Data – Outlier Detection – Feature Engineering – Exploratory Data Analysis for Risk Profiling – Labeling and Sampling Techniques. | | | |
| **Module 3** | **Fraud Detection Techniques** | Case Study (Experiential Learning) | **7 Sessions + 9 Practical** |

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| **Topics:** Statistical Techniques: Z-score, Benford's Law – Clustering for Anomaly Detection – Classification Models (Decision Trees, Logistic Regression) – Time-series for Transaction Monitoring – Network Analysis for Fraud Rings. | | | |
| **Module 4** | **Business Intelligence and Reporting** | Project (Experientia l Learning) | **7 Sessions + 9 Practical** |
| **Topics:** Dashboards for Risk Monitoring – Key Risk Indicators (KRIs) – Visualization of Fraud Metrics – Power BI for Decision Dashboards – Alerts and Reporting Mechanisms – Integration with Enterprise Risk Systems. | | | |
| **Targeted Application & Tools that can be used:** Excel, Python (Pandas, Scikit-learn), Power BI or Tableau. | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Baesens, B. (2015). *Analytics in a Big Data World: The Essential Guide to Data Science and its Applications*. Wiley. | | | |
| **Reference Books:**<br>**R1:** Bolton, R. J., & Hand, D. J. (2002). *Statistical Fraud Detection: A Review*. Statist. Sci.<br>**R2**: Michelman, P. (2014). *Harvard Business Review on Managing Risk*. Harvard Business Review Press. | | | |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home**<br><br>**Research Articles:**<br>1.https://www.researchgate.net/publication/357612119_Analysis_on_Business_Analytics_in_Risk_Management<br>2. https://riskonnect.com/reporting-analytics/data-analytics-risk-management-overcoming-challenges-and-pitfalls/<br>3. https://www.tandfonline.com/doi/full/10.1080/01605682.2022.2041373<br><br>**Multimedia (Videos):**<br>1. http://www.youtube.com/watch?v=QFyM3w95fXI<br>2. http://www.youtube.com/watch?v=xwm0YM3cmUE<br>3. http://www.youtube.com/watch?v=2ra0u9FsFgk<br><br>**Case Studies:**<br>1. Credit Card Fraud Detection using Predictive Modelling | | | |

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| 2. Insurance Claims Risk Assessment – ICICI Lombard<br>3. PayPal's Use of Network Analytics to Detect Fraud Rings<br>4. Deutsche Bank's Risk Management Using Big Data | |
| **Catalogue prepared by** | Dr. S Suresh Kumar |
| Recommended by the Board of Studies on | BOS NO: 18th held on 6,June,2025 |
| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |

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|---|---|---|---|---|---|
| Course Code: QNT5132 | **Course Title:** Business Intelligence and Visualization<br>**Type of Course: Specialization Track Elective Theory and Practical Course** | **L**<br>**2** | **T**<br>**0** | **P**<br>**2** | **C**<br>**3** |
| **Version No.** | 1.0 | | | | |
| **Course Pre-requisites** | QNT4111 Applied Business Statistics<br>QNT4112 Applied Data Analysis and Visualization | | | | |
| **Anti-requisites** | | | | | |
| **Course Description** | This course provides a comprehensive understanding of Business Intelligence (BI) concepts and tools with a focus on data visualization. Students will learn how to extract, transform, and load (ETL) data, create dashboards, and generate business insights through visual storytelling. Popular BI tools like Power BI and Tableau will be used to solve real-world business problems across industries. | | | | |
| **Course Outcomes** | **CO1** | **Understand** the core concepts and architecture of Business Intelligence systems | | | |
| | **CO2** | **Apply** BI tools for data integration, cleansing, and modeling | | | |
| | **CO3** | **Analyze** business data using visualization techniques to support decision-making | | | |
| | **CO4** | **Create** an interactive dashboards and reports to communicate insights effectively | | | |

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|---|---|---|---|
| **Course Objective** | This course is designed to improve the learners' **EMPLOYABILITYSKILLS** by using **EXPERIENTIALLEARNING** techniques. | | |
| **Module 1** | **Introduction to Business Intelligence** | Quiz (Participative Learning) | **8 Sessions + 8 Practical** |
| **Topics:** Introduction to BI; Evolution and role of BI in organizations; BI lifecycle; Architecture of BI systems; ETL concepts Tools: MS Excel, SQL basics. | | | |
| **Module 2** | **Data Visualization Principles and Tools** | Assignment using E Library (Participative Learning) | **8 Sessions + 8 Practical** |
| **Topics**: Visual analytics concepts; Chart types and storytelling with data; Dashboard design best practices; Data modeling and cleansing Tools: Excel, Tableau / Power BI. | | | |
| **Module 3** | **Advanced Visualization and BI Applications** | Case Study (Experiential Learning) | **8 Sessions + 7 Practical** |
| **Topics:** Interactive visualizations; Slicers, filters, DAX functions; KPI monitoring; Embedding analytics in decision systems. Tools: Power BI Desktop, Tableau Public | | | |
| **Module 4** | **Industry Use Cases & Capstone Project** | Project (Experiential Learning) | **6 Sessions + 7 Practical** |
| **Topics:** BI applications in retail (sales dashboards), finance (profitability analysis), HR (workforce analytics); Capstone project involving real-life BI scenarios and data. Tools: Power BI, Google Data Studio, Excel. | | | |
| **Targeted Application & Tools that can be used:** Python, Tensorflow | | | |
| **Project work/Assignment:** | | | |
| **Assignment 1:** Module 1 - Quiz<br>**Assignment 2:** Module 2 - Written Assignment<br>**Assignment 3:** Module 3 - Case study<br>**Assignment 4:** Module 4 - Project Work | | | |
| **Text Book:**<br>**T1:** Moss, L. T., & Atre, S. (2003). *Business Intelligence Roadmap: The Complete Project Lifecycle for Decision-Support Applications.* Addison-Wesley | | | |
| **Reference Books:**<br>**R1:** Few, S. (2009). *Now You See It: Simple Visualization Techniques for Quantitative Analysis.* Analytics Press<br>**R2**: Kimball, R., & Ross, M. (2013). *The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling.* Wiley | | | |
| **Online Resources:**<br>**https://presiuniv.knimbus.com/user#/home** | | | |

**Research Articles:**

1.https://www.researchgate.net/publication/388780215_Enhancing_Business_Intelligence_with_Data_Visualization_Tools

2.https://www.researchgate.net/publication/259333034_Data_Visualization_in_Business_Intelligence

3. https://www.francisxavier.ac.in/blog/the-role-of-data-visualization-in-business-intelligence-driving-informed-decision-making

**Multimedia (Videos):**

1. http://www.youtube.com/watch?v=33k1GzNybf8

2. http://www.youtube.com/watch?v=MLcDtRDQZbE

3. http://www.youtube.com/watch?v=MkjlIzvfqdo

**Case Studies:**

**1:** Walmart – Shelf Inventory Monitoring
**2:** Coca-Cola – Brand Logo Detection in Social Media
**3:** BMW – Automated Visual Inspection in Manufacturing
**4:** Amazon Go – Computer Vision for Cashless Retailing

https://venturebeat.com/ai/walmart-opens-an-ai-powered-store-to-monitor-inventory-in-real-time
https://towardsdatascience.com/detecting-brand-logos-in-social-media-images-with-deep-learning-f7e80f4c5a7e
https://www.bmw.com/en/innovation/artificial-intelligence-production.html

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| **Catalogue prepared by** | Dr. S Suresh Kumar |
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| Date of Approval by the Academic Council | Academic Council Meeting No. 26th held on 25,July,2025 |