

# **Tribhuvan University**



**Institute of Science and Technology**

**SCHOOL OF MATHEMATICAL SCIENCES**

## **Syllabus**

**Bachelor in Mathematical Sciences (B.Math.Sc.)**

**(with Major Actuarial Science) - EIGHTH SEMESTER**

### **Course Structure**

<b>Semester</b>	<b>Papers</b>	<b>Credit</b>
<b>Eight</b>	MSMN 451:Business Management II	3
	MSIN 451: Life and Property Insurance	3
	MSCB 451: Different Aspects of Financial Institutions	3
	MSST 451: Research Methodology	3
	MSIN 452:Internship	3
<b>Total</b>		<b>15</b>

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Code No.: MSMN 451

Paper: **Business Management II**

Nature: Theory

Full Mark: 75

Pass Mark: 30

Credit: 3

**Course Description:**

The course is a continuation of Business Management I. The course covers Strategic Management, Strategic Analysis, Leadership, and Working in Teams.

**Learning Objectives:**

On successful completion of this subject, a student will be able to:

1. Develop a coherent business strategy.
2. Define a business's culture.
3. Explain how a business's culture will impact on the implementation of a chosen strategy.
4. Understand the role of values and behaviours in the long term success of a business.
5. Understand how to manage change within an organisation.
6. Understand the importance of leadership in an organisation.
7. Understand the nature and dynamics of working in teams.

**Mode of Delivery:**

The course will be taught by lecture (48 hrs), and problem solving and class discussion (24 hrs). The use of spreadsheet software for problem solving will be encouraged.

**Contents:**

**Unit 1 Strategic Management**

**9 hrs**

concepts in strategic management, Nature and functions served by corporate strategy, Levels of strategy in organizations, Relationships between different levels of strategy in organizations,

**Unit 2 Strategic Management (Contd.)**

**10 hrs**

Importance of organisational goals, objectives and policy, Main features of the management of opportunities and risks, Importance of strategy and structure for the effective management of organizations, Strategic analysis tools (audit and analysis of resources for use in strategic decision making) and their comparison.

**Unit 3 Strategic Analysis**

**12 hrs**

Organisation's value chain (Value chain analysis),

Impact and influence of the internal and external environment on an organisation and its strategy (PESTEL analysis; SWOT analysis; stakeholder mapping; quantitative and qualitative tools of competitor analysis; sources, quality and availability of data for environmental analysis; Porter's Five forces model; Porter's Diamond), Use of scorecards (balanced and strategic) in the strategic management of a company, Changes to the product portfolio to support the organisation's strategic goals (management of the product portfolio).

**Unit 4 Leadership****8 hrs**

Importance of leadership in work organizations, Main approaches to leadership, Different styles, Forms of leadership, Importance of values and behaviours in the context of leadership, Exercise of leadership power and influence, Variables which determine effective leadership.

**Unit 5 Working in Teams****9 hrs**

Interactions among members of a group, Main types of member / team roles, Professional and personal qualities, Nature and value of group dynamics, Tools and techniques of project management, Identification of the nature and causes of conflict, Alternative approaches to the management of conflict, Importance of building effective teams and skills.

**References**

1. A Fred r. David, Forest r. David, Strategic Management: concepts and cases, Pearson, 2017.
2. A Frank Martin, Jonathan M. Scott, John Thompson Strategic Management: Awareness and Change, South-Western Cengage Learning, 2010.
3. Mullins, Laurie J., Management and organisational behaviour, Pearson, New York, 2016.
4. Michael A. Hitt, R. Duane Ireland, Robert E. Hoskisson, Strategic Management: Competitiveness and Globalization (Concepts and Cases), South-Western, Cengage Learning, 2009.
5. Hugh Macmillan, Mahen Tampoe - Strategic Management\_ Process, Content, and Implementation, Oxford University Press, USA, 2001.
6. Nancy Langton and et al, Organizational behaviour : concepts, controversies, applications, Pearson, canada, 2016.
7. Robert M. Grant, Contemporary strategy analysis 7th ed., John Wiley & Sons Ltd, 2010.
8. Cadle, James; Paul, Debra; Turner, Paul, Business Analysis Techniques : 99 essential tools for success, BCS Learning & Development Limited, 2014.

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Code No.: MSIN 451

Paper: **Life and Property Insurance**

Nature: Theory

Full Marks: 75

Pass Marks: 30

Credit: 3

*Course Description:*

The course covers Life, Health, Auto, Property, Home owners, Liability, Micro, Social Insurance, Pension Funds and Reinsurance.

*Learning Objectives:*

The objective of this course is to familiarize students with the concept and application of insurance and risk management. This course also aims to orient the student about insurance business mechanisms and practices in Nepal.

*Mode of Delivery:*

The course will be taught by lecture (48 hrs), and problem solving and class discussion (24 hrs). The use of spreadsheet software for problem solving will be encouraged.

**Contents:**

**Unit 1 Life Insurance**

**8 hrs**

Concept of Life insurance, Types of life insurance policy: Term, Endowment, Whole Life insurance, Economic Value of Human Life, Premature Death, Financial Impact of Premature Death, Approaches of Amount of Life Insurance to Own, Human Life Value Approach, Family Needs Approach, Capital Retention Approach, Types of Life Insurance Policy, Term Life Insurance, Whole Life Insurance, Endowment Life Insurance, Life Insurance Contractual Provisions, Dividends Options, Non Forfeiture Options, Settlement Options, Additional Life Insurance Benefits, Life insurance industry in Nepal.

**Unit 2 Health Insurance**

**5 hrs**

Concept of health insurance, Types of health insurance: commercial, universal, micro health insurance, Health insurance practices in Nepal.

**Unit 3 Auto Insurance**

**5 hrs**

Overview of automobile insurance, Liability coverage, Medical payment coverage, Uninsured and insured motorists coverage, Auto insurance pricing and underwriting, third party insurance, Current status, process of effecting automobile insurance and major issues. Automobile insurance practices in Nepal.

**Unit 4 Property Insurance**

**5 hrs**

Fire insurance contracts and its types, marine insurance contracts and its types, types of Marine insurance Policy, Aviation insurance contracts and its types, engineering and contractor's all risk insurance contracts, types of agriculture insurance indemnity, miscellaneous insurance.

**Unit 5 Home owners insurance**

**5 hrs**

Types of home owners insurance policies, Major coverage, Property loss settlement, Pricing of homeowner's policies, Personal umbrella policies, Coverage of high risk/ catastrophic perils and impact of catastrophes on property insurance.

**Unit 6 Liability Insurance****5 hrs**

Types of liability: Professional indemnity insurance, Product liability, Third party auto insurance, Staffs Fidelity insurance, employers' liability, public liability, directors' and officers' liability.

**Unit 7 Microinsurance****5 hrs**

Concept of microinsurance, objectives of microinsurance, types of microinsurance, microinsurance delivery channels, micro insurance and poverty reduction,

**Unit 8 Social Insurance and Pension Funds****5 hrs**

Concept of social insurance, objectives of social insurance, characteristics of social insurance, types of social insurance: Old-age survivors and disability insurance, unemployment insurance, Workers compensation, objective of pension funds, types of pension fund, Social security schemes in Nepal, pension fund in Nepal, current status and major issues.

**Unit 9 Reinsurance****5 hrs**

Concept of Reinsurance, Types of Reinsurance Agreements, Methods of Reinsurance, Importance of Reinsurance, Reinsurance Regulation, Reinsurance Industry in Nepal, Global reinsurance markets.

***References***

1. Kenneth Black Jr. and Harold D. Skipper Jr., *Life and Health Insurance*,
2. Emmett, J. Vaughan and Therese, M. Vaughan, **Fundamentals of Risk Management.**
3. Harrington, S. E., and Niehaus, G. R., *Risk Management and Insurance*, Tata McGraw-hill, New Delhi.
4. Rejda, G. E., *Risk Management and Insurance*, Pearson Education, New Delhi.
5. Ghimire, R., *Insurance: Theory and Practices*, *Buddha Publication*, Kathmandu.
6. Publications of Social Health Insurance Board, Kathmandu.

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Code No.: MSCB 451

Paper: **Different Aspects of Financial Institutions**

Nature: Theory

Full Marks: 75

Pass Marks: 30

Credit: 3

*Course Description:*

The course covers to Structure and formation of financial institutions, Negotiable instrument, Cash operation and Agency services, Deposit mobilization, Credit management, Risk management and Customer care services in financial institutions.

*Learning Objectives:*

This course aims to familiarize the students with the basics of financial institutions on Nepalese financial environment. It also aims at to familiarize them with concepts, theories and tools to financial institutions, and develop the skill to determine the market interest rate.

*Mode of Delivery:*

The course will be taught by lecture (48 hrs), and problem solving and class discussion (24 hrs). The use of spreadsheet software for problem solving will be encouraged.

**Contents:**

**Unit 1 Structure and formation of Financial Institutions**

**7 hrs**

Meaning and concept of bank and financial institutions, Evolution of banking institutions and banking law in Nepal, Role of banking institutions for socio-economic development, Licensing Policy for bank and FIs, Capital requirement, Types of bank and FIs, Functions of bank and FIs as per BAFIA 2063, Composition , Roles and Responsibilities of BOD in financial institutions.

**Unit 2 Negotiable Instrument**

**7 hrs**

Negotiable instrument and its types: Types and key features of cheque, Parties in a cheque, Cheque payment system, Validity and dishonored of cheque, Blacklisting provision in case cheque dishonor, Marking on a cheque, Stale cheque, Post dated cheque, MICR cheque, Cheque truncation, Promissory Note and its application, Parties in promissory note, Actions to be taken in case dishonor of promissory note, Bill of exchange and types, Parties in a bill of exchange, Actions to be taken in case of dishonor of bill of exchange, Negotiable instrument acts and its key features.

**Unit 3 Cash Operation and Agency Services**

**6 hrs**

Cash management, Security of vault, Cash insurance, Cash counter, Roles and responsibilities of cashier, Clearing system, Electronic clearing, Internal and external fund transfer, Remittance services, Utility payment services, Advisory services and Standing order from customer.

**Unit 4 Deposit Mobilization**

**6 hrs**

Meaning and nature of bank's deposit, Types of deposit, Interest bearing and non interest bearing deposits, Importance of CASA in financial institutions, Risk associated with call deposit, Interest rate provisions of NRB in deposit products, Sources of deposit in Nepal,

Asset liability management of a bank and its importance, Roles and responsibilities of Asset Liability Committee (ALCO) in a financial institutions.

#### **Unit 5 Credit Management**

**10 hrs**

Concept and nature of bank credit, Types of credit (Fund and Non fund based credit facilities), Different types of loan under fund and non fund based credit facilities, Credit granting, Five Cs to be considered while extending loan to borrowers, Loan approval and disbursement process, Loan monitoring and supervision.

Type of borrowers in a financial institutions ( micro, retail, SME , corporate and project loan), Legal procedure for recall and recovery, Legal features of collateral and security, Generally accepted security in Nepalese banking (land and building, goods and commodities, share and debenture, deposit certificate, personal guarantee promissory note, saving bond), NPA and its management, Additional provision to be made in different kinds of NPA as per NRB guidelines, NPA and book write of loan, Interest rate structure in Nepal.

#### **Unit 6 Risk Management**

**6 hrs**

Meaning and nature of financial risk, Types of major risk in banking business, Credit, Operational and Market risk and their management, Liquidity crisis, Factors that affect stability, Private solutions for bank runs and banking panics, Government solution for bank runs and banking panic, Solutions for market crashes.

#### **Unit 7 Customer Care Services**

**6 hrs**

Legal nature of financial institutions and customer relationship, Trustee-beneficiary, Agent-principal, Debtor Creditor, Special types of customer(individual, corporate, Government, NGO etc), Account opening and closing procedure, Customer care services and KYC, Client account maintenance, Card services, Meaning and concept of e-banking, Branch less banking, Mobile banking, ABBS.

#### **References**

1. Peter. S. R., *Commercial Bank management*, McGraw-Hill.
2. Thapa R.B and Rawal D., *Principles and practices of Nepalese Banking*, Buddha Academic Enterprises, Kathmandu, Nepal.
3. Pradhan, R.S., *Financial Management*, Buddha Academic Enterprises, Kathmandu, Nepal.

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Code No.: MSST 451  
Paper: **Research Methodology**  
Nature: Theory

Full Marks: 75  
Pass Marks: 30  
Credit: 3

*Course Description:*

The course has a preliminary focus on problem identification, theoretical framework development and hypothesis formulation. The course will then deal with research design issues, measurement, sampling, data collection and analysis. This encompasses the overall understanding and application of appropriate research techniques and research statistics, and report writing and presentation skills.

*Learning Objectives:*

The objective of this course is to make students familiar with research techniques in social sciences. After completion of this course, the students will be able to carry out research work independently.

*Mode of Delivery:*

The course will be taught by lecture (48 hrs), and problem solving and class discussion (24 hrs). The use of spreadsheet software for problem solving will be encouraged.

**Contents:**

**Unit 1 Introduction**

**8 hrs**

Concept and types of research, Process and characteristics of scientific research, Emerging paradigms in research: quantitative and qualitative, positivist, and interpretive paradigms, Relations between research approaches and research methodologies, Business research: types, value for decision making, Ethical considerations in research. Concept, Features and assumptions of Qualitative research, Common practices in qualitative research, Methods of qualitative research: Case study, Ethnography, Grounded theory and phenomenological study, Building trustworthiness and credibility in qualitative research, Strength of qualitative research.

**Unit 2 Beginning Stages in the Research Process**

**7 hrs**

Literature Review: purpose and steps; Searching, obtaining, and evaluating the literature; Literature search through the Internet; Format and guidelines for presenting the literature review.

Theoretical Framework: Concept and need for research; Research and theory – deduction and induction; Contributions of research to theory building and practice.

Problem Definition: concept and steps in problem formulation; Research questions – concept and types.

Propositions and Hypotheses Formulation: Concept of Proposition; Functions of hypotheses; Types: descriptive, relational, directional, explanatory and null hypotheses; Criteria of good hypothesis statement.

**Unit 3 Research Designs**

**7 hrs**

Elements of a research design; Classification of research designs: exploratory; descriptive; developmental; case study; causal-comparative and experimental research designs; Common sources of error.



**Unit 4 Measurement, Scaling and Sampling****8hrs**

Variables- concept and types; Scales of measurement; Attitude measurement and scale construction; Attitude scales commonly used in social science research; Criteria of good measurement-validity and reliability of measurement; Sources of measurement problems; Sampling-concept and process; Population and sampling; Types of sampling-probability and non-probability sampling; Sampling and non-sampling errors.

**Unit 5 Data Collection and Analysis****8 hrs**

Data and its types; Sources of primary and secondary data; Important considerations for data collection; Questionnaire- principles, components and types; Research interview- types and process; Sources of qualitative data- observation, participant observation, focus groups; Use of Internet for data collection; Data analysis- Data processing; Presenting data in graphs and tables; Statistical analysis of data descriptive and inferential statistics; Hypothesis testing; Methods of analyzing qualitative data-content, thematic and narrative analysis.

**Unit 6 Writing Proposals and Research Reports****10 hrs**

Functions and types of research proposals: solicited and unsolicited proposals; Structure and contents of academic and funded research proposals. Research reports- concept, process, types and procedure for writing research report; Conventions of academic writing; Pre- writing concerns; Components of the research report; Body of the project; Documenting sources- APA style of citation and referencing; Evaluation of research reports; Essentials of good research report.

**References**

1. Zikmund, W. G. *Business Research Methods*, Thompson, New Delhi, India.
2. Cooper D. R. and Schindler P. S. *Business Research Methods*, Tata Mcgraw Hill, New Delhi.
3. Bryman, A. and Bell, E., *Business Research Methods*, Oxford University Press, New Delhi.
4. Pant Prem R., *Fundamentals of Business Research Methods*, Buddha Academic Enterprises, Kathmandu.

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Code No.: MSIN 452

Paper: **Internship**

Nature : Practical

Full Marks: 75

Pass Marks: 50 %

Credit: 3

## **Internship Guidelines**

### **Course Description**

This course provides the student with an opportunity to explore career interests while applying knowledge and skills learned in the classroom. Students complete their internships from different financial institutions such as Life, Nonlife and Re-insurance companies, Commercial banks, Stock exchange offices, Share broker offices and SEBON etc. for the growth, experience and general expertise of their knowledge.

In the Internship Programme, students shall engage minimum for a period of 8 weeks. They are required to maintain a daily logbook relating to their works. The work that the students perform during the Internship will have to be supervised by the faculty members as well as by the representatives from the participating Industries. In addition, students are required to write a report and give three formal presentations for their evaluation.

### **Learning Objectives**

This course provides the students an opportunity to work on a specific area related to the Actuarial Science. It provides students an opportunity for professional network. By the end of the course, the students will be able to

1. Gain knowledge, experience and skill in a particular field in which the internship is done.
2. Develop a greater understanding about personal career goals.
3. Identify areas for future knowledge and skill development.
4. Improve oral and written communication skills.

### **Eligibility for Evaluation**

Completion of Internship work and submission of the Logbook, Internship Report and Employer's Confidential Report are compulsory requirements in order to be eligible for the Final Presentation and Viva.

### **Stages of Evaluation and Criteria**

#### **1. Preliminary Defense (At the beginning): 10% weight**

- Selection of Organization with Planning (5% of total)
- Presentation skill (5% of total).

#### **2. Mid-Term Progress Report (After 4 weeks):20% weight**

- Progress Report Design (5% of total)
- Presentation skill (10% of total).
- Viva (5% of total)

**3. Final Presentation and Viva (After the Completion of internship): 40% weight.**

- Depth of work (5% of total)
- Analysis, Design, documentation and overall project report (15% of total)
- Scope of the project and implementation (5% of total)
- Presentation skill (10% of total)
- Viva (5 % of total)

**4. Duly Completed Internship Logbook: 5 % weight**

**5. Employer's Confidential Report from the organization: 25 % weight**

- Regularity (5% of total)
- Performance (5% of total)
- Contribution to Problem Solving (5% of total)
- Cooperation (5% of total)
- Overall Impression (5% of total)

Preliminary defense will be evaluated by SMSTU Research Committee. Mid- term progress report defense will be evaluated by SMSTU Research Committee (70% marks) and Intern supervisor (30 % marks). Final presentation and viva will be evaluated by External examiner (30% marks), Intern supervisor (20 % marks) and SMSTU Research Committee (50% marks). Intern supervisor shall be the faculty member of the school. Intern can be co-supervised by the mentor appointed by the head of the organization. External examiner shall be appointed by the Examination Section, Office of the Dean, Institute of Science and Technology in consultation with Director of SMSTU.

## **Internship Programme Procedure**

It is the responsibility of the student/ School Internship Committee to search for an organization to undertake the Internship in the area of specialization. For this purpose, students need to inform the School Internship Committee in writing about the potential Internship provider prior to commencement of the Internship. The School Internship Committee will evaluate the suitability of the potential Internship provider as per pre-determined criteria. All such Internship opportunities received by the School will be displayed on the Notice Board. School Internship Committee continuously monitors the progress of the Internship Programme.

## **Internship Project Report**

The student must write a comprehensive final report supervised by the faculty members as well as by the representatives from the participating Industries. Internship Supervisor will guide the student in the process of writing the report. Supervisors are expected to share their experience,

insight, and enthusiasm with the student throughout the internship. In the report, the student should mention the general experience that he/she obtains during the Internship training and any specific knowledge and achievements gained. Identification of the problem/issue, formulation of objectives, selecting an appropriate methodology and sample, analyzing data and deriving conclusions and recommendations are also required. The completed Internship Report should be submitted to the School Internship Committee.

## **Tentative Structure of the Report**

- Title Page
- Declaration from student
- Internship complete letter
- Approval/recommendation page
- Acknowledgement
- Abstract
- Table of contents
- List of figures
- List of tables
- Abbreviations/acronyms
- **Chapter I: Introduction**  
(Including Background, Objectives of the Study, Methodology, Limitations of the Organization)
- **Chapter II: Introduction of the organization** (Including aim of establishment of the company, present situation, challenges and opportunities)
- **Chapter III: Analysis of activities undertaken/problems solved**
- **Chapter IV: Conclusion, lesson learnt and suggestions**
- References (Should be arranged in the latest edition of APA format)
- Appendices

### **Domain/Scope of Internship (Project Implementation /Research)**

- Life, Nonlife and Re-insurance companies,
- Commercial banks and other related financial institutions.
- Stock exchange offices, share broker offices and SEBON etc.

**Note:** The research committee can adjust / modify/ amend the Internship procedure, Structure of the Internship report and Evaluation criteria.

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