

**UNIVERSITY OF DHAKA**



**Syllabus of the Department of Pharmaceutical Chemistry**

**for**

**M. Pharm. Program**

**from 2016-2017 and onwards**

**Duration of Program: One year**

The M. Pharm. (Pharm. Chem.) program will be divided into two groups (Thesis and General) with courses for a total of **900** and **850** marks, respectively.

Distribution of the marks and credits are listed below:

**Thesis group:**

	<b>Subject</b>	<b>Subject-wise Marks</b>	<b>Total Marks</b>	<b>Credit per course</b>	<b>Total Credits</b>
Theory	6	100	600	4	24
Thesis	1	200	200	8	8
Thesis presentation	1	50	50	2	2
<i>Viva voce</i>	1	50	50	2	2
<b>Total Marks</b>			<b>900</b>	<b>Total Credits</b>	<b>36</b>

**Non-thesis (general) group:**

	<b>Subject</b>	<b>Subject-wise Marks</b>	<b>Total Marks</b>	<b>Credit per course</b>	<b>Total Credits</b>
Theory	6	100	600	4	24
Practical	6	25	150	1	6
Report submission and presentation on particular topic(s)	1	50	50	2	2
<i>Viva voce</i>	1	50	50	2	2
<b>Total Marks</b>			<b>850</b>	<b>Total Credits</b>	<b>34</b>

**Courses and mark distribution for both thesis and general groups  
are given below:**

**Thesis Group**

Course Code	Course Title	Credit(s)	Marks		
			In-course	Final	Total
PHC 601	Pharmaceutical Analysis & Quality Control	4	20	80	100
PHC 602	Advanced Medicinal & Synthetic Chemistry	4	20	80	100
PHC 603	Chemical Biology & Molecular Pharmacology	4	20	80	100
PHC 604	Pharmaceutical Biotechnology & Biopharmaceuticals	4	20	80	100
PHC 605	Nutraceuticals & Phytomedicines	4	20	80	100
PHC 606	Research Methodology	4	20	80	100
PHC 607	Thesis Work	8	-	-	200
PHC 608	Presentation / Seminar	2	-	-	50
PHC 609	<i>Viva voce</i>	2	-	-	50
<b>Grand Total</b>		<b>36</b>	-		<b>900</b>

**General Group (Non-thesis)**

Course Code	Course Title	Credit(s)	Marks		
			In-course	Final	Total
PHC 601	Pharmaceutical Analysis & Quality Control	4	20	80	100
PHC 601L	Pharmaceutical Analysis & Quality Control-Lab	1	-	-	25
PHC 602	Advanced Medicinal & Synthetic Chemistry	4	20	80	100
PHC 602L	Advanced Medicinal & Synthetic Chemistry-Lab	1	-	-	25
PHC 603	Chemical Biology & Molecular Pharmacology	4	20	80	100
PHC 603L	Chemical Biology & Molecular Pharmacology-Lab	1	-	-	25
PHC 604	Pharmaceutical Biotechnology & Biopharmaceuticals	4	20	80	100
PHC 604L	Pharmaceutical Biotechnology & Biopharmaceuticals – Lab	1	-	-	25
PHC 605	Nutraceuticals & Phytomedicines	4	20	80	100
PHC 605L	Nutraceuticals & Phytomedicines - Lab	1	-	-	25
PHC 606	Research Methodology	4	20	80	100
PHC 606L	Research Methodology – Lab	1	-	-	25
PHC 610	Report submission and presentation on particular topic(s)	2	-	-	50
PHC 611	<i>Viva voce</i>	2	-	-	50
<b>Grand Total</b>		<b>34</b>	-		<b>850</b>

## PHC 601: Pharmaceutical Analysis & Quality Control

Credit Hr: 4.0

1. Spectroscopy:
  - NMR: Local diamagnetic shielding and magnetic anisotropy, spin-spin splitting, different spin system including AB, AX, ABC, ABX, AMX, AMNX etc., Pascal triangle, coupling constant, mechanism of coupling, quadrupole broadening and decoupling, simplification of proton NMR spectra, water peak suppression, resolution of NMR spectra. Effect of stereochemistry on the spectrum, shift reagents.
  - $^{13}\text{C}$  NMR, DEPT, APT, COSY, TOCSY, NOESY, ROSEY, 2D-HETCOR, INADEQUATE, HSQC, HMBC, etc.
  - LC-NMR, hyphenated NMR spectroscopy.
  - Applications of  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR and with some examples.
  - Practice problems on structure elucidation using NMR, MS, etc.
  - FTIR, ATIR, ESR, SPR.
2. Mass spectrometry: Essential components of mass spectrometer, ionization techniques, mass analyzers, types of ions, metastable ion, isotopic ions and their corresponding peaks, rules of fragmentation, McLafferty rearrangement, mass spectral fragmentation of organic compounds containing common functional groups, retro Diels Alder and other fragmentation patterns. Introduction to FAB, TPSI, TOF, MALDI-TOF, LC-MS, CI-MS, GC-MS, LCMS/MS.
3. X-ray and optical techniques: X-ray crystallography, chirality analysis, polarimetry.
4. Thermal analysis: Principles and applications of thermogravimetric analysis (TGA), differential thermal analysis (DTA) and differential scanning calorimetry (DSC).
5. Chromatographic techniques: HPTLC, HPLC, 2D HPLC, UPLC, FPLC, GC, size exclusion chromatography, affinity chromatography, chiral chromatography, counter current chromatography, droplet chromatography.
6. Electrochemical methods of analysis: Conductometry, amperometry, polarography, potentiometry, controlled potential electrolysis.
7. Radiopharmaceutical and radiochemical analysis.
8. Quality control of pharmaceuticals
9. Validation of analytical methods.
10. Verification and calibration of analytical and bioanalytical instruments.
11. Any other topics as per the course teacher commensurate with the course title.
12. Course review.

### **Books Recommended**

1. Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists- David. G. Watson, Churchill Livingston.
2. A Textbook of Pharmaceutical Analysis- K.A. Connors, Wiley Interscience, New York.
3. Pharmaceutical Analysis- T. Higuchi and E. B. Hanssen, Interscience, New York.
4. Practical Pharmaceutical Chemistry, A.H. Beckett and J.B. Stenlake, Part 1 & 2, The Athlone Press, London.
5. Quality Assurance of Pharmaceuticals- A Compendium of Guidelines and Related Materials; Volume-1; World Health Organization, Geneva.
6. Analytical Method Validation and Instrument Performance Verification, Edited by C. C. Chan, H. Lam, Y. C. Lee and Xue-Ming Zhang, John Wiley & Sons Inc.
7. Fundamentals of Analytical Chemistry, Douglas A. Skoog, Donald M. West, F. James Holler.
8. Analytical Chemistry: Principles. John H. Kennedy. 2<sup>nd</sup> edition, Saunders College Publishing: New York.
9. Introduction to Spectroscopy, Donald L. Pavia, Gary M. Lampman, George S. Kriz, James A. Vyvyan, 5<sup>th</sup> Edition, Cengage Learning.
10. Spectroscopic Methods in Organic Chemistry, Dudley H. Williams, Ian Fleming, 1996, McGraw-Hill.

### **PHC 601L: Pharmaceutical Analysis & Quality Control - Lab**

#### **Credit Hr: 1.0**

1. Identity tests of drug molecules by thin layer chromatography and HPLC.
2. Assay of commonly used drugs by HPLC
3. Assessment of the precision of quantitative measurements using HPLC.
4. Assay of theophylline in aminophylline tablets or suppositories by UV-visible spectrophotometry.
5. Separation and identification of xanthine derivatives in tea or coffee by HPLC.
6. Determination of paracetamol in plasma using reversed-phase HPLC.
7. Determination of percentage of menthol in peppermint oil by GC.
8. Gas chromatographic determination of composition of fatty acids in Arachis oil.
9. Any other practical(s) designed by the course teacher.

## **PHC 602: Advanced Medicinal & Synthetic Chemistry**

**Credit Hr: 4.0**

1. Basis of drug design and drug discovery:
  - Combinatorial chemistry
  - Fragment based drug discovery and the synthon approach
  - Structure-activity relationship
  - QSAR and molecular modeling
  - High-throughput screening in drug discovery
2. Advanced synthetic approaches:
  - Retrosynthetic pathways, modular and bio-orthogonal synthesis
  - Green chemistry
  - Polymer chemistry
  - Asymmetric synthesis
  - Various preparations illustrating selected techniques and synthetic approaches such as: Esterification, hydrolysis, nitration, dehydration, reduction, Diels Alder reaction, catalytic reduction.
3. Computational chemistry:
  - Basic principles of computational chemistry, cheminformatics and bioinformatics.
  - *Ab initio* methods: Hartree-Fock theory and basis sets, Møller-Plesset perturbation theory
  - Semi empirical methods
  - Density functional theory
  - Molecular modelling
  - Molecular docking
4. Industrial synthesis of commonly used APIs: Antiulcerants, PPIs, antibacterial agents, cardiovascular drugs, NSAIDs, antidiabetics etc.
5. Any other topic(s) as per the course teacher commensurate with the course title.
6. Course review.

### **Books Recommended**

1. An Introduction to Medicinal Chemistry- G. L. Patrick, Oxford University Press.
2. Wilson and Gisvold's Text Book of Organic, Medicinal and Pharmaceutical Chemistry- Edited by John Block and John M. Beale, Lippincott, Williams & Wilkins.

3. Advanced Practical Organic Chemistry- J. Leonard *et al.* Academic press.
4. Advanced Organic Chemistry- Bernard Miller, Prentice Hall.
5. Advanced Organic Chemistry- M. B. Smith and Jerry March, Wiley Interscience.
6. Mechanism and Theory of Organic Chemistry- T. H. Lowry and K. S. Richardson, Benjamin- Cummings publishing company.
7. Physicochemical Principles of Pharmacy- A. T. Florence and D. Attwood, Pharmaceutical Press.

### **PHC 602L: Advanced Medicinal & Synthetic Chemistry - Lab**

#### **Credit Hr: 1.0**

1. Application of *N*-methylation, mesylation/tosylation, reductive amination, cycloaddition reactions in synthesizing bioactive compounds/drugs and purification techniques thereof.
2. Synthesis of heterocyclic nucleus.
3. Functional group interconversions.
4. Computer methods: Structural drawings using Chem. Office Ultra Pro/Isis Draw, PC Spartan for molecular modeling and computational chemistry.
5. Experimental: Various preparations illustrating selected techniques and synthetic approaches such as: - Esterification, hydrolysis, nitration, dehydration, reduction, Diels Alder reaction, catalytic reduction.
6. Drug isolation, physostigmine from calabar bean: Acetyl cholinesterase, physostigmine inhibition.
7. Purification of products : Recrystallization of impure solids, separation by acid and base extractions, chromatographic techniques including TLC, CC, GLC, HPLC, UPLC, etc.
8. Any other practical(s) designed by the course teacher.

### **PHC 603: Chemical Biology & Molecular Pharmacology**

#### **Credit Hr: 4.0**

1. Protein chemistry, protein structure, protein sequencing.
2. Chemistry of nucleotides and nucleic acids, DNA sequencing.
3. Chemistry of bioactive lipids and lipid based drugs.
4. Free-radicals and anti-oxidants, mechanism of anti-oxidative actions.

5. Enzyme mechanisms and kinetics.
6. Molecular mechanism of drug action and drug resistance.
7. Molecular mechanism of drug metabolism, kinetics and signal transduction pathways.
8. Cancer biology and carcinogenesis.
9. Molecular basis of diseases.
10. Pharmacological, biological, biochemical, immunological and histopathological tools and techniques used in the screening and evaluation of natural and synthetic drugs.
11. Any other topics as per the course teacher commensurate with the course title.
12. Course review.

### **Books Recommended**

1. Burger's Medicinal Chemistry and Drug Discovery- Edited by Donald J. Abraham, Wiley-Interscience.
2. Essentials of Medicinal Chemistry- Andrejus Korolkovas and Joseph. H. Burckhalter, John Wiley & Sons Inc.
3. Organic Chemistry- R. T. Morrison and R. N. Boyd, Allyn and Bacon.
4. Heterocyclic Chemistry- J. A. Joule and G. F. Smith, English Language Book Society.
5. Foye's Principles of Medicinal Chemistry- David A. Williams and Thomas L. Lemke, Lippincott, Williams & Wilkins.
6. Medicinal Chemistry: Principles and Practice- Frank D. King, The Royal Society of Chemistry.
7. An Introduction to Medicinal Chemistry- Graham L. Patrick, Oxford University Press.

### **PHC 603L: Chemical Biology & Molecular Pharmacology - Lab**

#### **Credit Hr: 1.0**

1. Drug sensitivity test against bacteria.
2. Enzymatic action of hespreidinase in hydrolysis of rutin.
3. Evaluation of antidiabetic, anti-inflammatory, cytotoxic, antioxidant activities etc.
4. Preparation of tissues for histopathology and staining.
5. Measurement of insulin and other proteins by ELISA.
6. Record keeping, safety, methods for purifying solvents and reagents, setting up



reactions, monitoring reactions, working up reactions, preliminary clean-up of reaction products, decolorization.

7. Any other practical(s) designed by the course teacher.

### **PHC 604: Pharmaceutical Biotechnology & Biopharmaceuticals**

#### **Credit Hr: 4.0**

1. Genomics and proteomics.
2. Transgenics / gene knock out techniques.
3. Methods in biotechnology
  - Cells and tissue culture technology
  - Fermentation technology, downstream processing of biotech products
  - Genetic engineering, recombinant DNA technology, blotting techniques, DNA microarray techniques, DNA hybridization techniques etc.
  - Genetic mutation and protein engineering.
  - Monoclonal antibody and hybridoma technology, applications of antibodies, antibody engineering, antibody naming etc.
  - Immobilization of enzymes
  - Vaccine technology
4. Biopharmaceuticals: Production, characterization, formulation, storage, handling and dispensing of insulin, growth hormone, streptokinase, trastuzumab, interleukin, interferon, vaccines etc.
5. Nucleic acid therapeutics (gene therapy, antisense therapy, RNAi technology).
6. Pharmacokinetics, pharmacodynamics and pharmacogenomics of biopharmaceuticals.
7. Any other topics as per the course teacher commensurate with the course title.
8. Course review.

#### **Books Recommended**

1. Biotechnology and Biopharmaceuticals: Transforming Proteins and Genes into Drugs- Rodney J.Y. Ho and Milo Gibaldi, Wiley-Liss.
2. Biopharmaceuticals: Biochemistry and Biotechnology- Gary Walsh, Wiley-Blackwell.
3. Pharmaceutical Biotechnology- S.S. Purohit, H. N. Kakrani and A.K. Saluja, Riddhi International.
4. Biotechnology and Genomics- P. K. Gupta, Rastogi Publications.

5. Principles of Fermentation Technology- P.F. Stanbury and A. Whitaker, Butterworth-Heinemann.
6. Fermentation: A Practical Approach- B. McNeil and Harvey, IRL Press, Oxford.
7. Molecular Biotechnology: Principles and Applications of Recombinant DNA- B.R. Glick, J.J. Pasternak & C.L. Patten, American Society for Microbiology.

### **PHC 604L: Pharmaceutical Biotechnology & Biopharmaceuticals - Lab**

#### **Credit Hr: 1.0**

1. Isolation and culture of primary cells, culture of cells and/or microorganisms, preparation of media, preservation, sub-cultures.
2. Isolation and purification of soil micro-organism and fermentation for the production of secondary metabolites, enzymes etc.
3. Extraction of genomic DNA, separation by gel electrophoresis and quantification.
4. Extraction of plasmid DNA, separation by gel electrophoresis and quantification.
5. Extraction of total RNA and separation by gel electrophoresis and quantification.
6. Transformation of plasmid DNA into competent cells.
7. Strategy for the preparation of haptens for the production of mono/poly-clonal antibodies.
8. Preparation of protein sample and separation by SDS-PAGE.
9. Identification of insulin by Western blotting and as designed by the course teacher.
10. Construction of cDNA library and genomic library.
11. Any other practical(s) designed by the course teacher.

### **PHC 605: Nutraceuticals & Phytomedicines**

#### **Credit Hr: 4.0**

1. Introduction: General status, importance, role of natural products and W.H.O. policy.
2. Herbs as raw materials: Definition, source of herbs, selection, identification and authentication of herbal materials, drying and processing of herbal raw materials.
3. Extraction of herbal materials: Choice of solvent for extraction, methods used for extraction and principles involved in extraction.
4. Standardization of herbal formulation and herbal extracts: WHO and cGMP guidelines, stability studies for extracts, predictable chemicals and galenical changes.
5. Nutraceuticals: Herbal nutraceuticals, different types of additives used, analysis of these

nutritional and other ingredients in ethical and non-ethical foods.

6. Herbal product development: Methods involved in mono- and poly-herbal formulations, phyto-equivalence & pharmaceutical equivalence, quality control of finished herbal medicinal products.
7. Prebiotics and Probiotics: Extraction and evaluation of prebiotic and probiotics, properties, development of probiotics and prebiotics for industrial purposes.
8. Functional ingredients: Study of the effects and mechanisms of action of crude plant extracts and bioactive food components for prevention of non-communicable and chronic diseases.
9. Functional foods: Isolation and evaluation, functional properties and stability of bioactive peptides.
10. Health food for elderly, neonates and children: Prevention of metabolic diseases with nutritionally balanced foods, pharmacological studies of natural products in animal model including *in vivo* and *ex vivo* assays.
11. GM foods: health benefits and risks.
12. Any other topic(s) as per the course teacher commensurates with the course title.
13. Course review.

### **Books Recommended**

1. Handbook of Nutraceuticals and Functional Foods (Modern Nutrition) - Robert E. C. Wildman, CRC Press.
2. Regulation of Functional Foods and Nutraceuticals: A Global Perspective- C. M. Hasler, Wiley-Blackwell.
3. Essentials of Food Science- V. Vaclavik, E. W. Christian and S. B. Cooper, Kluwer Academic Publishers.
4. Functional Food Ingredients and Nutraceuticals: Processing Technologies- J. Shi, J. W. King, CRC Press.
5. Food Technology: An Introduction- Anita Tull, OUP Oxford.
6. Nutraceuticals: Developing, Claiming and Marketing Medical Foods- S. L. DeFelice, M. Decker, Inc. New York.
7. Food packaging and preservation- M. Mathlouthi, Springer.
8. Food Law Handbook- Schultz, H. William, AVI Pub. Co., Westport, Conn. (USA).
9. Manuals of Food Quality Control: Quality, Adulteration and Tests of Identity- O. P. Dhamija, FAO Publications.

### **PHC 605L: Nutraceuticals & Phytomedicines - Lab**

#### **Credit Hr: 1.0**

1. Brine shrimp lethality assay, crown gall potato disk bioassay and cell line assay for the screening of cytotoxic compounds.
2. Experimental design for the construction of bioassays using cell line for screening of pharmaceutical leads.
3. Handling of laboratory animals and screening of phytoconstituents in different animal models.
4. Quality control of nutraceuticals and phytomedicines.
5. Detection of marker compounds in herbal medicine, nutraceuticals and functional foods by chromatographic methods.
6. Any other practical(s) designed by the course teacher.

### **PHC 606: Research Methodology**

#### **Credit Hr: 4.0**

1. Foundation of research.
2. Types and methods of research- Classification of research, pure and applied research, exploring or formulative research, descriptive research, diagnostic research/study, evaluation research/studies, action research, experimental research, analytical study of statistical method, historical research, surveys, case study, field studies.
3. Review of literature.
4. Planning of research.
5. Sampling.
6. Methods of data collection- Meaning and importance of data, sources of data, use of secondary data, methods of collecting primary data, observation method, experimentation, design of experiments, simulation.
7. Tools for data collection-Types of data, construction of schedules and questionnaires, measurement of scales and indices, pilot studies and pre-tests, experimental data sets, check sheet.
8. Field work
9. Processing of data.
10. Statistical analysis of data.

11. Biostatistics and design of experiments.
12. Report writing.
13. Any other topic(s) as per the course teacher commensurate with the course title.
14. Course review

**PHC 606L: Research Methodology – Lab**

**Credit Hr: 1.0**

1. Research proposal/protocol writing.
2. Report writing.
3. Any other practical(s) designed by the course teacher.

**Books Recommended**

1. Research Methodology: Methods and Techniques, C. R. Kothari, New Age International Publishers
2. Statistical Methods for Research Workers, Fisher R. A., Cosmo Publications, New Delhi.
3. Design and Analysis of Experiments, Montgomery D.C. (2001), John Wiley, MINITAB online manual.

**কোর্স পদ্ধতিতে মাস্টার্স কোর্সের প্রচলিত নিয়মাবলী সংশোধন ও সংযোজন (২০১৬-২০১৭ হতে)**

**ফার্মাসিউটিক্যাল কেমিস্ট্রি বিভাগঃ**

১। ক) ফার্মেসী অনুষদের অন্তর্ভুক্ত ফার্মাসিউটিক্যাল কেমিস্ট্রি বিভাগের মাস্টার্স কোর্সে ঢাকা বিশ্ববিদ্যালয় হতে ৪ (চার) বছর /০৫ (পাঁচ) বছর মেয়াদী বি. ফার্ম. ডিগ্রীপ্রাপ্তগণ ভর্তি হতে পারবে।

খ) মাস্টার্স কোর্সে দু'টি গ্রুপ (থিসিস ও সাধারণ) থাকবে এবং থিসিস গ্রুপে সর্বমোট ৯০০ এবং নন-থিসিস গ্রুপে সর্বমোট ৮৫০ নম্বর থাকবে।

মাস্টার্স কোর্সের নম্বর ও ক্রেডিট বণ্টন নিম্নে দেয়া হলঃ

**Thesis Group**

Course Code	Course Title	Credit(s)	Marks		
			In-course	Final	Total
PHC 601	Pharmaceutical Analysis & Quality Control	4	20	80	100
PHC 602	Advanced Medicinal & Synthetic Chemistry	4	20	80	100
PHC 603	Chemical Biology & Molecular Pharmacology	4	20	80	100
PHC 604	Pharmaceutical Biotechnology & Biopharmaceuticals	4	20	80	100
PHC 605	Nutraceuticals & Phytomedicines	4	20	80	100
PHC 606	Research Methodology	4	20	80	100
PHC 607	Thesis Work	8	-	-	200
PHC 608	Presentation / Seminar	2	-	-	50
PHC 609	Viva voce	2	-	-	50
<b>Grand Total</b>		<b>36</b>	<b>-</b>		<b>900</b>

## General Group (Non-thesis)

Course Code	Course Title	Credit(s)	Marks		
			In-course	Final	Total
PHC 601	Pharmaceutical Analysis & Quality Control	4	20	80	100
PHC 601L	Pharmaceutical Analysis & Quality Control-Lab	1	-	-	25
PHC 602	Advanced Medicinal & Synthetic Chemistry	4	20	80	100
PHC 602L	Advanced Medicinal & Synthetic Chemistry-Lab	1	-	-	25
PHC 603	Chemical Biology & Molecular Pharmacology	4	20	80	100
PHC 603L	Chemical Biology & Molecular Pharmacology-Lab	1	-	-	25
PHC 604	Pharmaceutical Biotechnology & Biopharmaceuticals	4	20	80	100
PHC 604L	Pharmaceutical Biotechnology & Biopharmaceuticals – Lab	1	-	-	25
PHC 605	Nutraceuticals & Phytomedicines	4	20	80	100
PHC 605L	Nutraceuticals & Phytomedicines – Lab	1	-	-	25
PHC 606	Research Methodology	4	20	80	100
PHC 606L	Research Methodology – Lab	1	-	-	25
PHC 610	Report submission and presentation on particular topic(s)	2	-	-	50
PHC 611	<i>Viva voce</i>	2	-	-	50
<b>Grand Total</b>		<b>34</b>	<b>-</b>	<b>-</b>	<b>850</b>

২। পূর্ণ ইউনিট কোর্সের ইনকোর্স এবং ফাইনাল পরীক্ষার সময় হবে যথাক্রমে ১ ঘন্টা ও ৪ ঘন্টা।

৩। ব্যবহারিক / মৌখিক পরীক্ষা লিখিত পরীক্ষার অব্যবহিত পরে অনুষ্ঠিত হবে।

৪। মাস্টার্স কোর্স ৩ (তিন) শিক্ষা বছরের মধ্যে শেষ করতে হবে।

৫। (ক) নন-থিসিস গ্রুপঃ

- i. নন-থিসিস গ্রুপের কোন ছাত্র-ছাত্রী কোন একটি তত্ত্বীয় কোর্সে অকৃতকার্য হলে উক্ত কোর্সটি পরবর্তী সেশনে রিটেক করতে পারবে। তবে উক্ত কোর্সে ছাত্র-ছাত্রীর গ্রেড পয়েন্ট B+ (বি-প্লাস) এর অধিক হবে না।
- ii. কোন ছাত্র-ছাত্রী একের অধিক কোর্সে অকৃতকার্য হলে তাকে পুনঃভর্তি হতে হবে এবং নিয়মিত ব্যাচের সাথে ক্লাশ ও পরীক্ষায় অংশগ্রহণ করতে হবে।

(খ) থিসিস গ্রুপঃ

- i. থিসিস গ্রুপের কোন ছাত্র-ছাত্রী যদি কোন একটি তত্ত্বীয় কোর্সে অকৃতকার্য হয় তাহলে সে পরবর্তী সেশনে উক্ত তত্ত্বীয় কোর্সটি রিটেক করতে পারবে।
- ii. লিখিত পরীক্ষা শেষ হওয়ার অনূর্ধ্ব ০৪ (চার) মাসের মধ্যে অবশ্যই থিসিস জমা দিতে হবে। এই সময়সীমার মধ্যে কেউ থিসিস জমা দিতে ব্যর্থ হলে থিসিসে অনুপস্থিত দেখিয়ে ফলাফল চূড়ান্ত করা হবে এবং সে পরবর্তী সেশনে থিসিস জমা দিতে পারবে এবং থিসিস উপস্থাপন ও মৌখিক পরীক্ষায় অংশগ্রহণ করতে পারবে।
- iii. কোন ছাত্র-ছাত্রী যদি থিসিস মূল্যায়ণে অকৃতকার্য হয় তাহলে সে পরবর্তী সেশনে থিসিস জমা দিতে পারবে। সেক্ষেত্রে তার পূর্ববর্তী থিসিস উপস্থাপন ও মৌখিক কোর্সের নম্বর অপরিবর্তিত থাকবে।
- iv. উপরের কোন ক্ষেত্রেই গৃহীত retake কোর্সে গ্রেড পয়েন্ট B+ (বি-প্লাস) এর অধিক হবে না।
- v. থিসিস গ্রুপের কোনও ছাত্র-ছাত্রী যদি একটি কোর্সে অকৃতকার্য ও থিসিস জমাদানে অপারগ হয় তাহলে তাকে পুনঃভর্তি হয়ে পরবর্তী সংশ্লিষ্ট নিয়মিত ব্যাচের সাথে পরীক্ষা দিতে হবে।

৬। Retake নেয়া শিক্ষার্থীর মার্কশীট এ “retake” উল্লেখ থাকবে।

৭। সাধারণ গ্রুপ এবং থিসিস গ্রুপের পরীক্ষার ফলাফল প্রকাশের জন্য অনুষদে প্রবর্তিত Revised Guidelines for Letter Grading System অনুসরণ করা হবে।

৮। উপরোল্লিখিত নিয়মাবলী ছাড়াও ঢাকা বিশ্ববিদ্যালয়ের কোর্স পদ্ধতিতে মাস্টার্স ডিগ্রী কোর্সের জন্য প্রচলিত সাধারণ নিয়মাবলী বলবৎ থাকবে।