MS Handbook

National University

of Computer & Emerging Sciences Islamabad

June 2025

VISION

To produce world-class professionals, who are responsible citizens and good human beings.

MISSION

To identify and attract the most promising students from diverse communities, to shape them into visionary leaders and world- class professionals.

To impart quality education to students, irrespective of their financial background ethnicity, gender or religion to create an inclusive society. To promote research and scholarly activities to generate knowledge.

Disclaimer

The contents of MS Handbook supersede all policies, rules, regulations, procedures, requirements and conditions notified earlier. The University reserves the right to change any part or whole of this Handbook without notice or obligation.

In case of any ambiguity of non-existence of rules and regulations, the final authority for their interpretation and provision shall rest with the University whose decision shall be final and binding for all parties concerned.

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Preface

The National University of Computer and Emerging Sciences (FAST-NUCES) offers various MS degree programs, which are aimed to enhance career opportunities to students in their field of specialization. The objectives of these programs are to facilitate research and development environment and meet the growing needs of the relevant industry. With focus on professional development, MS studies are significant for career progression.

This handbook provides necessary guidelines for MS studies at FAST-NUCES. Students will find these guidelines useful for a successful student life.

This handbook provides important guidelines, rules, and regulations for various MS programs. Students are expected to follow these guidelines to achieve the overall goal of academic excellence.

It is expected that the MS students of FAST-NU will learn from enriched academic activities and play a leading role in their fields both at the national as well as international level. The FAST-NUCES management and faculty will always be available to provide support and guidance to the students in this context.

May God help us in our path of success!

Acknowledgements

1.   Scope

The scope of this document is to define the details relevant to all the MS programs.

2.   Eligibility Criteria for Admissions

1.   Sixteen years of education or 4-year relevant University degree after HSSC/F.A. /FSc. /Grade 12 or Equivalent will be required for admission in the MPhil/MS/Equivalent program.

2.   For the admission test, the Higher Education Commission recommends the universities to:

a.   Either enter a private arrangement under the University Law with the NTS for conducting GAT General as an eligibility condition for admission to MS/MPhil or equivalent programs.

<div align="center">OR</div>

b.   Engage another renowned testing service provider for this purpose.

<div align="center">OR</div>

c.   Conduct the test of the equivalent level at the University.

3.   The students have to clear the test with a minimum 50% cumulative score for admission in MPhil/MS or equivalent Program in all the above-mentioned options.

4.   For the award of MPhil/MS/Equivalent degree, candidates will need to complete 30 to 60 credit hours. Some degrees may require completion of 6 credit hours for Thesis/Project/Practicum/Dissertation, which will be spanned over two semesters. Students are advised to consider program-specific guidelines for details.

3.   Admission in an MS Program

For a student to be granted admission, he or she must have completed a degree in relevant subject earned from a recognized university after 16 years of education and must have secured at least 60% marks or CGPA of at least 2.00 (on a scale of 4.00). The students also need to have completed the core courses for their respective degree programs in their previous degree, before entering the MS program. Certain MS programs can have additional eligibility and admission requirements. Considering the University's policy for inter-disciplinary and intra-disciplinary admissions, a student may be asked to study 9-12 CH of deficiency courses. The deficiency courses will appear with DEF status on the transcript. There is no fee for studying deficiency courses.

Admission is based on candidate's performance in the following:

Past Academic Record (Bachelor) 50%

Performance in NU MS subject Admission Test 50%

The following (table 1) is a topical distribution of admission test questions for various degree programs:

Table 1 – Admission Test Description

Section/Topic	MS (Applied Ling.)	MS (Computing)	Other MS Programs
English	15%		5%
Essay Writing	25%	10%	10%
Analytical Skills & IQ	15%	30%	20%
Basic Math	-	-	-
Adv. Math	-	-	10%
Specialization Area	45%	30%	40%
Quantitative Methods	-	30%	15%
Business related Knowledge	-	-	-

Admission with Credit Transfer from another University

a.   Any student with credits earned at other institution (s), under formally accredited programs, aspiring for admission into a degree program at FAST-NUCES, has to qualify the merit determined by the admission test for that year for the respective degree program.

b.   The relevance / compatibility / validity of the curriculum/contents studied at the previous institution is determined against the curriculum and contents of the relevant courses taught at FAST-NUCES.

c.   Exemption of courses studied at another university cannot be given to more than 50% of the total credit hours of the degree program.

d. The HoD recommends courses compatible with FAST-NUCES courses for the exemption to the Director.

e. Recommendations for credit exemption are sent by the Director of the campus to Dean of Faculty for validation who is the final authority to grant course exemption.

f. No credit can be given for a course in which the grade is below B, that is, a GPA of less than 3.00 on a scale of 4.00.

g. For transfer of credits for an elective course, the course must be passed within five years.

h. If credit is given for a course, then credit will also be given for its pre-requisite course(s), provided a passing grade was earned in that course (pre-requisite).

i. Only credits of relevant courses with at least B grade are transferable, and not the CGPA earned in the previous institution.

Transfer to another FAST-NUCES campus

a. The request of a student for transfer from one campus of the University to another will be considered only on the following grounds:

  i. Death of a parent.

  ii. Posting of a parent to the city where the transfer is desired.

  iii. Marriage of a female student.

b. The request shall be considered by the competent authority, provided the Directors of both the campuses have no objection to it and that there is a place available in the destination campus.

c.   The transfer shall not be considered in the following cases:

  i.   The student is under disciplinary punishment.

  ii.   Disciplinary action is pending against the student.

  iii.   Dues are outstanding against the student.

  iv.   During a semester.

Suspension of Registration

Registration of a student is suspended in any of the following situations:

1.   Failure to complete registration formalities in time.

2.   Behavior calling for disciplinary action.

3.   Unsettled financial and other matters with the University.

Restoration of Suspended Registration

A student whose registration is suspended may request restoration of registration provided he/she has cleared all the issues that called for suspension and pays all dues.

4.   Degree Requirements

The duration of the semester is 18 weeks, of which 16 weeks are spent in teaching activities and two weeks are allocated for final examinations. A mid-term examination is held in the middle of the semester. Student attendance is marked on separate sheets and updated on the Flex system at the end of classes. Students are expected to meet 75% attendance.

Grading of the courses is based on assessments through mid-term exam, assignments, quizzes, project, case-studies, or any other method considered appropriate by the course instructor and the

University. The grading criteria are communicated to the students at the start of a course.

The total time for completion of a degree is a maximum of 4-years.

Some degrees require that the student completes 6 CH of thesis/project/practicum, which will be spanned over two semesters. For enrollment in thesis/project/dissertation, a student must have a CGPA of 2.50 or more. In addition, the student must be in the last two semesters of the degree.

Coursework in each degree program consists of a few core and elective courses. The Research Methodology course is compulsory for all degree programs.

5.   Curriculum

The curriculum should satisfy the core requirements for the program as specified by HEC.

6.   Degree Plan

The degree plan is spanned over two years. Figure 1 shows a detailed degree plan for a two-year MS degree along with core and elective courses. The actual degree plan may vary depending upon actual core and elective courses. Some degree plans may not have thesis/project requirements. Students are advised to check the specific degree requirements.
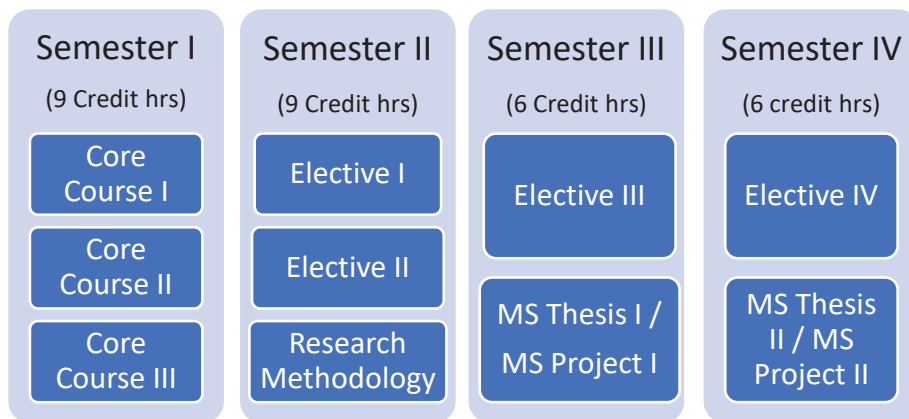
Semester I (9 Credit hrs)	Semester II (9 Credit hrs)	Semester III (6 Credit hrs)	Semester IV (6 credit hrs)
Core Course I	Elective I	Elective III	Elective IV
Core Course II	Elective II		
Core Course III	Research Methodology	MS Thesis I / MS Project I	MS Thesis II / MS Project II

Figure 1- Degree Plan

7.   Semester Registration

Students are required to register in each semester (Spring and Fall) and to pay the prevalent semester fees. All students are required to register for normal course load, except those who are advised otherwise. The recommended registration procedure is as follows:

1.   Clear all previous fees and other dues before registration.

2.   For the First semester, appear for registration through the Admission Office. For the remaining semesters, students should register online.

3.   Pay current dues in full, immediately after the online registration is complete.

Students under Academic Warning

a)   A student whose CGPA falls below the graduating CGPA, i.e., 2.5, falls in Academic warning.

b)   The warning count increases if the CGPA remains less than 2.5.

c)   A student in academic warning must register for all such courses, in which the grade was F.

d)   Should not register for more than three courses Students with warning count = 2 MUST not register for a new course.

Admission Closure

If the warning count reaches three, then the admission is considered close.

Semester Freeze

Under exceptional circumstances, a student may take a semester off by requesting the campus Director for a semester freeze. The relevant fee must be paid.

8.　　MS Coursework

1.　　The performance of students is assessed during the semester through a mid-exam, quizzes, assignments, projects, case studies, or any other method considered appropriate by the course instructor and the University. This shall be communicated to the students at the start of a course.

2.　　A student is expected to attend all classes. The student should have 75% attendance in the course; otherwise, the student is not allowed to appear in the Final examination.

3.　　In general, the semester work will contribute 50% towards the final grade, while the final examination will contribute the remaining 50% of the total marks. A letter grade will be awarded to each student based on his/her overall academic performance in a course.

4.　　One of the letter codes given below is printed against each course in the transcript.

5.　　Minimum Grade required to pass a course is C, that is, GPA = 2.0

Description of Grades

The Grade Point Average calculation ensures a continuous scale for the respective grades. The grade issued by the University will be final. Two types of averages will be computed for the grades obtained by each student, the Semester Grade Point Average (SGPA), and the Cumulative Grade Point Average (CGPA).

SGPA is the weighted average of grade points earned in a semester. The weights are taken as the ratio of course credits to the total credits taken by the student in the semester.

CGPA is the weighted average of all the courses taken so far. For repeat courses, only the most recent grade points are used, even if they are less than the earlier attempts.

Letter grades for MS programs

Table 2 shows the relationship and CGPA

Table 2 – Grades and CGPA

Grade	Points	Interpretation
A+	4.00	Outstanding
A	4.00	Excellent
A-	3.67	Very Good
B+	3.33	Good
B	3.00	Average
B-	2.67	Below Average
C+	2.33	Adequate
C	2.00	Pass

The following letter grades are common to all degree programs (table 3):

Table 3 – Grades and Interpretation

Grade	Points	Interpretation
CN	-	Continuing Research
F	0.00	Fail
FA	0.00	Fail (attendance shortage)
I	-	Incomplete
W	-	Withdrawn
S	-	Satisfactory
U	-	Unsatisfactory

CN, I, and W grades are not used in computing SGPA or the CGPA.

- "W" will appear as a grade in the transcript like any other grade.

- "I" will appear as a temporary grade in the transcript subject to change to the grade awarded. Grade "I" shall automatically convert to an "F" grade before the end of the next semester.

- Repeat courses will be indicated on the transcript together with the repeat count.

9. Examinations and Assessments

MS studies are based on a semester system consisting of a mid-exam and a final exam. Depending upon the course assessment plan, other

tools for assessments such as quizzes, assignments and projects are also used. Distribution between sessional marks and final marks may vary for each course.

Missed Examination

A student is expected to appear in the exam as per the announced schedule. However, in extreme cases retake of missed exam me be conducted. Such cases are decided by a campus-level committee as per the University guidelines.

10. Policy on Retake Examination

Retake examination application may be considered in the following cases:

Issue	Description	Documents Required
Marriage	Self or Sibling	Wedding Card and Marriage Certificate
Severe Illness	Hospitalization (Self/Immediate Family Member)	Hospitalization Certificate and Hospital Bill
Death	Immediate Family Member	Certificate
High Fever / Diarrhea Asthma	Self	Medical Certificate
Severe Injury	Injury leading to disruption in capability to appear for the exam	Supporting Documents and Medical Reports
ISSB Examination / Iqama Renewal	Actual dates must collide with the examination date.	Documentary Proof
Any religious festival/ event with fixed dates	Hajj	Travel documents or other related information

Retake examination applications will not be considered in the following cases:

1.	Habitual Applicants. An applicant with more than 5 requests of retake in his or her academic career;	5.	Students suffering from minor Injuries;
2.	Applications with incomplete documents;	6.	Marriage of cousins; and
3.	Students suffering from Coughs and Colds;	7.	Other cases not covered in the table above
4.	Religious events with flexible dates (such as Umrah, Aitekaf leave);		

Notes:

1.	All applications along with supporting documents must be submitted within the specified timeframe on Flex;	3.	Immediate Family Member includes Sibling, Parent, and Grand Parents;
2.	A student travelling during exams due to a valid reason may be facilitated by conducting the same exam at the remote campus on the same day and time of the exam at the base campus. (Exam paper shall be sent through	4.	If in doubt the student must contact the office before the academic exam. Extra time may be allowed to facilitate a student who has a

email to the concerned HoD at the remote campus);	medical condition; and
	5. Above are just the guidelines. Final decision rests with the Campus Committee and the Campus Director.

11. Policy on Generative AI Based Tools

Introduction

In today's rapidly evolving landscape of higher education, the integration of advanced technology, particularly Generative Artificial Intelligence (AI), holds significant transformative potential. This document examines the application, implications, and management of Generative AI at National University of Computing and Emerging Sciences (FAST-NUCES), emphasizing its role in enhancing both academic and administrative functions while upholding academic integrity and fostering innovation. Educational institutions have recently witnessed a paradigm shift through the integration of digital technology to enhance teaching and learning experiences. AI systems, particularly Generative AI, have played a central role in this transformation, offering personalized support through intelligent tutoring and recommendation systems. Despite its benefits, the rapid adoption of Generative AI raises concerns regarding academic integrity, necessitating educators to explore effective integration strategies. This policy focuses on incorporating Generative AI into teaching and learning at FAST-NUCES, aiming to provide guidelines for its responsible and effective use to enrich the educational experience while maintaining integrity.

Generative AI, a subset of artificial intelligence (AI), empowers machines to autonomously create new content ranging from text to images. It offers tools such as ChatGPT, Bard, DALL-E, and Stable Diffusion, which have sparked significant interest and experimentation among students and instructors alike within academic settings. While these tools offer tremendous potential for enhancing creativity, productivity, and personalized experiences, they

also present inherent risks, including concerns related to data privacy, ethical implications, and the potential bypassing of key learning objectives.

To optimize the advantages of Generative AI while minimizing associated risks, it is imperative to establish precise objectives. These objectives should clearly state what the University aims to achieve by using Generative AI in teaching and learning along with what the University expects to achieve by implementing it. By setting these objectives, FAST-NUCES can make sure that its use of Generative AI aligns with its educational mission and promotes responsible and effective use across the campuses.

2. Objectives

1) The University will support students and faculty in becoming AI-literate, leading to improved understanding and proficiency in using Generative AI tools, thereby enhancing academic and professional skills.

2) Faculty should be equipped to support students in effectively and appropriately using Generative AI tools in their learning experience, resulting in increased student competence and confidence, which leads to better learning outcomes.

3) The University will adapt teaching and assessment to incorporate the ethical use of Generative AI and support equal access, ensuring more inclusive and equitable educational experiences while maintaining academic integrity.

4) The University will ensure academic rigor and integrity are upheld, preserving high academic standards and credibility, even with the integration of AI tools, by implementing comprehensive guidelines.

5) The University will work collaboratively to share best practices

as technology and its application in education evolve, ensuring continuous improvement and innovation in teaching and learning practices through shared knowledge and experiences.

6)   Promoting innovation and creativity in curriculum development and assessment design by incorporating Generative AI technologies will lead to the creation of dynamic and adaptive educational resources tailored to individual student needs.

3.   Guidelines for Use

The guidelines for the use of Generative AI at University are designed to ensure responsible and effective utilization by both students and faculty. Authorized users, including students and faculty members, are granted access to Generative AI tools upon meeting specified criteria and undergoing appropriate training. Access procedures entail obtaining permissions and credentials through designated channels, with access levels tailored to the specific roles and responsibilities of users. Acceptable use policies outline the intended educational purposes for which Generative AI tools may be utilized, emphasizing the importance of ethical and lawful conduct in all interactions. Prohibited activities encompass behaviors such as plagiarism, unauthorized data manipulation, or any other misuse of Generative AI capabilities. Violations of these policies may result in disciplinary actions, including account suspension or academic penalties. Time limits may be implemented to regulate usage and ensure equitable access for all users, with guidelines provided to facilitate responsible utilization within designated timeframes.

4.   Acceptable Uses of Generative AI Tools

In general, using Generative AI tools for preparatory research work, assignment and project is considered acceptable practice, however such tools should never be the only source of information used. Generative AI tools are not academic sources; they do not produce fact- checked content, and they can, and often do, reproduce inherent biases in provision of information, and they often do not accurately state the sources from which the content provided has been gathered. It is therefore vital that students use academic and trusted disciplinary- specific sources when developing their work. None of the content generated by AI should be used in submitted work unless it is quoted and referenced as such.

AI is at its best when it is used to help synthesize ideas, so that users are in a better position to write an assignment. It may be helpful for students to consider Generative AI tools in a similar light to Wikipedia: as a source of information, but not always a reliable one.

See some potentially acceptable uses of Generative AI here. Please note, this list is not exhaustive and is indicative only.

1)   Initial research into a topic, idea, or concept to gain an overview for example: "what are the main ethical concerns for students when using generative artificial intelligence tools?"

2)   Identifying/summarizing core concepts or viewpoints in a particular disciplinary area for example "what were the prevalent influences on 19th century writers?" or "What ethical considerations arise from the use of data mining techniques in cybersecurity, particularly within the realm of computer science?"

3)   Summarizing texts- Sections of text can be pasted into a Generative AI tool and it asked it to summarize the content.

This is especially useful if you are unsure that you understand what the key message or concept in a piece of text is.

4)   It is important to note that summaries cannot be pasted into work for assessment purposes unless they are being used as short quotations for a specific purpose. These quotations must be appropriately cited and the correct referencing conventions in the subject area used.

•   Taking notes during group work discussions

•   Getting ideas on how to present work

•   Organizing work

•   Formatting a reference list

It is also possible to use Generative AI tools for proof reading and self-assessment (i.e. to get feedback on your work prior to submission), as deemed acceptable, however, it is not clear what happens to the data submitted to Generative AI tools, and so caution must be exercised. If work uploaded to Generative AI platforms is used to train the dataset from which it creates new responses for others, your work might be used in another's work, thereby risking plagiarism. Therefore, students should not upload their work to sites that do not have clear privacy policies and opt outs. Equally, it is not permissible to upload any personal or sensitive data, or University materials (e.g. lecture slides, teaching content, etc.) onto these systems without permission.

5.   Unacceptable Uses of Generative AI Tools

The unacceptable use of Generative AI software broadly falls in line with other examples of academic misconduct that exist outside of Generative AI space. Students using the technology to simply circumvent the requirements of an assessment or using it to create entire assessments that they then disguise as their own original work

is not acceptable. The requirement to declare, cite, reference and reflect on the use of Generative AI is designed to prevent students from simply using the technology to create assessments that they then claim as their own, and a student that refuses to declare how they have used the technology, does not cite it, reference it or reflect on its outputs may be attempting to hide the fact that the work is not their own. If staff suspect that students have used Generative AI in unacceptable ways, they may use the Turnitin detector score to help them identify how much of a document may have been written using AI.

Some examples of misuse of Generative AI may include, but are not necessarily limited to:

1) Students generating an entire assignment submission and passing it off as their own work.

2) Submitting content generated by Generative AI tools without appropriate and correctly presented acknowledgement and citation of the source(s).

3) Using tools which paraphrase text to pass off the work of another person (including another student), organization, or content generated by artificial intelligence as the student's own.

4) Using manual or machine translation to translate the work of another person (including another student) or organization originally developed in a language other than English without appropriate and correctly presented acknowledgement and citation of the original source.

5) Submitting assessed work where the use of Generative AI has been cited, but the prompt given is in contravention of good academic practice e.g. "write a literature review on climate

change for my research paper." All work submitted must be the student's own.

6)   Using tools in any other way that conflicts with the standards articulated (1) in degree level guidance or (2) in semester level guidance or (3) in the instructions you were given for the specific piece of assessed work.

7)   Uploading any data generated from empirical research projects in contravention of ethical approval conditions - for example, information on participants of research studies.

8)   Using generative AI to write literature reviews is unacceptable because it lacks critical analysis. For example, an AI-generated review might summarize studies without comparing methodologies or highlighting gaps, leading to a superficial understanding of the research.

9)   Good Academic Practice as stated in the Academic Integrity Policy: Guidelines for Students is demonstrated through:

- Honesty and integrity

- Trustworthiness

- Respect for the wider academic community and your fellow students

- Fairness, knowing that you have truly earned the marks awarded for your work and that you have not used unfair means to gain an advantage

If students base their work purely on the output generated by Generated AI/AI tools, and do not consult any other sources of information, it is unlikely that their work will be (1) completely accurate and/or (2) have the sufficient depth of understanding and critique expected for the level of study. Students are encouraged to go

directly to academic and discipline-specific sources for several reasons. It is possible that AI tools and/or secondary sources might have misinterpreted or misrepresented information which will result in students importing errors into their work. Additionally, engaging with academic and discipline-specific sources allows students to develop their own thoughts and ideas in the context of established scholarship. Students who do not do this are unlikely to pass their assessments. Assessment is an important part of learning and students who do not complete assessments appropriately risk not only wasting their own time at University, but also not having the necessary skills required by employers when they leave.

6.   Generative AI and Assessments

By focusing on the responsible and appropriate use of Generative AI, we should consider why we are assessing students, what we want students to learn, and how students can demonstrate their learning.

1)   Consider your semester learning outcomes. What do you want your students to achieve with this assessment? What core skills do you intend for them to develop? Will the use of Generative AI help or hinder students from achieving their learning goals? Make sure you consider the diverse learning needs of your student cohort when you are thinking about how your students might achieve their learning goals.

2)   Consider how exactly students may or may not use Generative AI for your assessment in order to meet learning outcomes. Most students do not want to shortcut their learning. They want you to be clear and explicit on how they can and cannot use Generative AI.

3)   FAST-NUCES has developed three categories to provide guidance for when and how students can use Generative AI in their assessments. These categories are to help you clarify

expectations with your students. Each category describes a general approach with examples. You may adapt these categories, offer additional clarification, and include different examples. The three categories are:

- Students are not allowed to use Generative AI for their assessment.

- Students are permitted to use Generative AI tools for specific purposes to assist with their assessment

- Generative AI is an integral part of the assessment and students are encouraged to use it extensively.

Departments, Instructors, and/or Lab Instructors, must decide which category to employ for their assessments in advance.

Ensure that your decision is communicated and explained to students. Assessment could include a statement for students clearly.

6.1   Use in Non-Lab Courses:

1) Students are allowed, and sometimes encouraged, to use generative AI tools like ChatGPT for completing course assignments.

2) All the course assignments must include associated quizzes or demonstrations.

3) A small percentage (typically 10-15%) of the total marks will be allotted to the assignment submissions. The majority of the marks will be based on the assignment quizzes or demonstrations. This grading distribution should be clearly stated in the course outline. These quizzes or demonstrations should take place in the week following the submission deadline.

4) Faculty members are encouraged to integrate questions related to these assignments into both sessional and final exams.

5) Students should be encouraged to submit the prompts they used in generative AI tools to understand the assignments. Instructors can use these prompts to identify students' weaknesses by analyzing the approach they took to comprehend the material.

6.2 Use in Lab Courses:

1) In general, the use of generative AI tools like ChatGPT in labs is prohibited unless explicitly allowed by the lab instructor, particularly in courses such as Programming Fundamentals (PF), Object-Oriented Programming (OOP), and Data Structures (DS) etc.

2) 10% of the labs will allow the use of generative AI tools.

3) When the use of generative AI is permitted, lab sessions will be extended to 2.5 hours. In the final half-hour, students will be given a small quiz task to complete independently, without using generative AI tools. At the end of these sessions, students must submit the prompts they used during the first 2.5 hours. The LI will review these logs to assess the students' understanding.

4) Marks for these labs will be based on performance in the quiz task and the quality of the submitted prompts. The Lab Instructor must ensure that the quiz task's complexity is reasonable and appropriate, considering the original lab task and the allotted time.

6.3 Use in Research:

1) Generative AI tools like ChatGPT are to be used as assistive tools for research purposes only. They should enhance productivity, explore ideas, and provide insights while preserving the integrity of the research process.

2) Researchers and students intending to use generative AI in their research must undergo appropriate training to understand its capabilities and limitations. They should also be familiar with the University's policies on academic integrity and the responsible use of AI tools.

3) The use of generative AI in research projects must be reviewed and approved by relevant faculty members, advisors, or supervisors to ensure compliance with University policy and alignment with research objectives.

4) Generative AI should not be used for the automated submission of research work, assignments, or any other academic assessments. All submissions must be the original work of the researchers.

7. Detecting Generative AI Use in Assessments

1) Use software like Originality.ai, Turnitin, Copyscape, and Grammarly etc. for detecting the use of generative AI in the assessment.

2) Integrate plagiarism detection tools like Turnitin and Copyscape capable of spotting AI- generated content.

3) Students should add screenshots of the prompts given to the Generative AI to check how students has use it will help the TA as well.

4) Encourage instructors to remain vigilant for sudden performance improvements.

5) Inform the students about the ethical implications of AI use in a course. Communicate clear policies on AI use in assessments, including consequences.

6) Create an active learning environment to encourage student engagement and understanding.

8. Referencing Generative AI Tools

Using Generative AI/AI tools for research and in the preparation of work does not require citation, similar to how an initial Google search for information does not require citation. Before the introduction of Generative AI, students were not required to reference web searches, sources that had not directly informed their submitted work, or the use of spell checkers. Therefore, the use of Generative AI for similar purposes need not be referenced unless an assignment brief specifically states otherwise. It is unlikely that students will need to directly quote content from AI-generated sources very often due to the limitations of Generative AI tools. However, students must critically evaluate any content generated using AI. In certain circumstances, or for specific content types, referencing may be required. For example, part of the assessment may involve using AI to generate text that the student then critiques. In these instances, if students' work includes a verbatim quotation, embedded image, or figure, this should be referenced within the text or content of the assignment and in the reference list. Additionally, students must include images of the prompts they used with the Generative AI tool to ensure transparency and proper attribution.

9.   Privacy & Data Security

The University must uphold its legal responsibilities regarding the protection of information, which extends to all University affiliates. Breaches of these protections can lead to severe consequences, including harm to affected individuals, damage to the University's reputation, and legal liability. Faculty, staff, and students are prohibited from submitting any data directly identifying individuals or classified as Sensitive or Confidential into AI tools not supported by the University. Additionally, datasets containing information indirectly identifying individuals must not be submitted to unsupported AI tools. Furthermore, ensuring accuracy and integrity of information is paramount, requiring meticulous maintenance and retention of official records in accordance with established protocols. Attention must also be given to metadata considerations, as there's a distinction between directly inputting data into a Generative AI system and uploading a file, which may contain unseen metadata. Documents created using AI may be subject to open records laws and record retention requirements, emphasizing the need for compliance with data retention policies and procedures of the University.

10.   Training & Support

To ensure faculty and students at FAST-NUCES are equipped with the necessary knowledge and support for effective utilization of Generative AI tools, comprehensive training and technical assistance are provided. Workshops, training modules, and online resources are available to cater to varying proficiency levels and specific needs, offering guidance on Generative AI application. Additionally, dedicated technical support services ensure prompt resolution of any issues encountered during usage. Peer learning communities further facilitate collaboration and knowledge sharing among users.

1) **Workshops:** FAST-NUCES will organize workshops specifically designed to educate faculty and students on the usage and application of Generative AI tools.

2) **Training Modules:** Tailored training modules will be developed to cater to varying levels of proficiency and specific needs, providing comprehensive guidance on Generative AI utilization.

3) **Online Resources:** Accessible online resources, including tutorials, guides, and instructional videos, will be provided to supplement in-person training and offer continuous support.

4) **Technical Assistance:** Dedicated technical support services will be available to address any technical queries or issues encountered during Generative AI usage, ensuring uninterrupted access and optimal functionality.

5) **Peer Learning Communities:** Opportunities for faculty and students to engage in peer learning communities will be facilitated, fostering collaboration, knowledge sharing, and best practices in Generative AI utilization.

11. Monitoring & Compliance

To uphold ethical standards and ensure adherence to policies regarding the use of Generative AI tools at FAST-NUCES, robust monitoring and compliance measures are implemented. Monitoring procedures are systematically carried out to oversee the usage of Generative AI tools among faculty and students, ensuring alignment with established guidelines and regulations. Any instances of non-compliance are identified, and appropriate consequences are enforced to address violations effectively. These consequences may include disciplinary actions, such as warnings, suspension of privileges, or academic penalties, aimed at reinforcing the importance of

responsible Generative AI utilization and upholding institutional integrity.

12.   Review & Revision

To maintain the relevance and effectiveness of policies governing the use of Generative AI tools at FAST-NUCES, a structured approach to review and revision is adopted. Regular reviews of existing policies are conducted to assess their adequacy and alignment with evolving technological advancements and institutional needs. Stakeholder feedback, including input from faculty, students, and administrative personnel, is solicited and considered during these reviews to ensure inclusivity and responsiveness to diverse perspectives. Through this iterative process of review and revision, FAST-NUCES aims to continuously enhance its Generative AI policies, fostering a supportive and adaptive framework for responsible Generative AI utilization across the University community.

Cheating in Examination/Plagiarism in Assignments

The University adheres to strict academic guidelines. Cheating or the use of unfair means in examinations is not allowed. Such cases are dealt strictly with zero tolerance. Similarly, plagiarism in assignments or projects is strictly prohibited and will be dealt with as per the HEC guidelines.

12. MS Thesis/ Project

MS Thesis/ Project-Basics

The thesis or project in a Master's degree program comprises a total of six credit hours that is to be taken in the final year of the degree program as two separate courses, i.e., Thesis1/ Project 1 and Thesis 2/ Project 2. Each one of these will be a 3-credit hour course, which should be taken in a separate semester with a separate grading scheme.

The purpose of a thesis is to enable the graduate students to apply academic knowledge in a scientific way in order to investigate an original research problem. A thesis allows a student to demonstrate his or her analytical skills to thoroughly investigate a given research problem and contribute to the field of research by devising solutions following a rigorous scientific process. The MS thesis is supposed to be a new idea, and the generation of new knowledge would be the ultimate goal (as contribution). Generally, the work depends upon some already published concepts and will lead to either improvements or new techniques/solutions, etc. The only proof of concept is considered enough (from an implementation point of view), and a complete product may not be required at this stage. The originality of ideas and contributions are the main goals.

The objective of the project on the other hand, is to allow the students to apply the technical and management skills acquired during their MS degree and develop a project of appropriate size and complexity in two semesters. The projects can be from different domains and can be of different types and nature. For instance, a project can be about developing software to meet needs of customers and users in a specific domain, or a project can be about developing a creative product and solution. The MS project is an implementation of some

ideas (not done and tested yet) but has been presented and published previously. In other words, MS projects would be a unique/original concept converted into products for use by its potential users.

The MS project is focused on implementation of an idea through a proof of concept. In other words, MS projects would be a unique/original concept converted into products and solution for use by its potential users. The concentration in MS Project is on requirement collection, design, development, and validation. The complete process of product life cycle should be followed in MS Projects. The ultimate goal is to train a student for real implementation work related to the field.

Learning Outcomes of MS Thesis

The specific learning outcomes of the MS thesis are for the students to demonstrate. These are demonstrated in table 4:

Table 4 – CLOs of MS Thesis

CLO 1.	A capability to use appropriate research methodology to conduct high-quality research;
CLO 2.	Analytical skills to critically review the state-of-the-art and identify literature gap;
CLO 3.	A capability to contribute to the existing fielding of knowledge by developing innovative research solutions;
CLO 4.	An ability to express the scientific contributions in both oral and written form and to defend the contributions based on scientific arguments;

CLO 5.	An ability to solve complex discipline-specific research problems by developing practical solutions.

Learning Outcomes of MS Project

The learning outcomes of the MS project are displayed in table 5.

Table 5 - Learning Outcomes of MS Project

CLO 1.	Use principles of the project management lifecycle on relevant and appropriate scenarios.
CLO 2.	Identify, inspect and construct creative and effective solutions to real world problems.
CLO 3.	Choose project management and development techniques to initiate, plan, execute and evaluate a project scenario.
CLO 4.	Exhibit working knowledge of design and development using modern standards, latest tools, and techniques.
CLO 5.	Exhibits communication skills through presentations and standard project documentation.

MS Thesis/ Project Eligibility

A student is eligible to register in MS Thesis/ Project 1 provided that the student:

i.   Has earned at least 15 credit hours with a minimum CGPA of 2.50.

ii.   Has passed the Research Methodologies (or equivalent) course.

iii.   Is not on warning at the time of registration.

A student is eligible to register in MS Thesis/ Project 2 after completing the requirements of MS Thesis/ Project 1 (i.e., passing MS Thesis/ Project 1 course).

Timeline

An MS thesis/ project can be registered at the start of Spring or Fall semesters. Considering the semester plan, students are strongly encouraged to meet their potential supervisor before the beginning of the semester and explore areas of research. The following tentative timelines are followed for various activities related to Thesis/ Project 1 (table 6) and Thesis/ Project 2 (table 7):

Table 6 – Thesis-1/ Project-1 Timeline

Thesis/ Project 1 – Activities Plan and Tentative Timeline	
Registration	At the start of Spring and Fall semesters
Add/ Drop week	2nd week of semester
Examiners Allocation	2nd week of semester
Proposal Idea and Scope approval	3rd week of semester
Midterm evaluation	7th to 10th week
Report Submission	14th -15th week of the semester (*Day-1 of 14th week*)

Thesis/ Project 1 – Activities Plan and Tentative Timeline	
Presentations and Report Evaluations (Examination Committee)	14th and 15th week of semester
Grades Finalization and Reviews/ Comments Dissemination	17th week of semester
Grade Upload on Flex	17th week of semester
Submission of Revised Thesis/ Project 1 document and Response Document	19th week of semester

Table 7 – Thesis -2/Project -2 Timeline

Thesis/ Project 2 – Activities Plan and Tentative Timeline	
Registration	At the start of Spring and Fall semesters
Add/ Drop week	2nd week of semester
Midterm evaluation	7th-9th week of semester
Thesis/ Project Report Submission	14th week of semester *(Day-1 of 14th week)*
Report Evaluations & Pre-defense feedback (Examination Committee)	14th and 15th week of semester

Thesis/ Project 2 – Activities Plan and Tentative Timeline	
Reviews/ Comments Dissemination	17th week of semester
Submission of Revised Thesis/ Project 2 and Response Document	19th week
External Defense	20th week onwards

MS Research Committees (MSRCs)

The Head of School (HoS) /Head of Department (HoD) constitutes an MS Research Committee (MSRC), which will consist of faculty members of the concerned department lead by an MS thesis/ project coordinator. The MS thesis/ project coordinator will assist the department in all activities related to the MS thesis/ projects. Throughout the rest of this document, MSRC will refer to MS thesis/ project coordinator and vice versa. MSRC is responsible for managing and executing the research activities for an MS program. Following is a non-exhaustive list of tasks that are performed by each MSRC:

Managing the MS thesis/ project registration process of students with the support of academic staff;

Allocation of internal examiners for an MS thesis/ project in a priority sequence (See Section 5); Balancing load of examiners/ supervisors using exam-load formula (See Section 5);Dissemination of the thesis/ project reports and sharing of relevant evaluation links with examiners and supervisors; Arranging the approval of external examiners of MS Thesis/ Project 2; Managing the external evaluation process; Conducting the final public defense of Thesis/ Project 2 students; Finalizing the grades of Thesis/ Project based on supervisor's and examiner's feedback; Consolidating the suggestions of reviewers and sharing with students; Plagiarism evaluation of the thesis/ project documents; Format-checking of the thesis/ project documents;

- Suggesting and implementing improvements in the thesis/ project process and ensuring the quality of the process;

- Any other task related to MS Thesis/ Project as assigned by the HoD

1. Thesis/ Project Registration Process

This section describes the procedural details regarding the MS Thesis/ Project, including registration.

1.1. Registration of MS Thesis/ Project 1

The students are required to register the Thesis/ Project 1 using the online university portal (i.e., Flex) as well as by submitting a formal registration form (see Appendix A) to the MSRC. The registration form duly signed by a supervisor should be submitted before the start or day-1 of semester. Students failing to do so will not be allowed to register for Thesis/ Project 1. In the research methodology course, students are encouraged to start work in their domains after acquiring formal supervision consent from the faculty members, and subsequently, submitting this form to MSRC (as formal consent for the future thesis/ project registration).

The thesis/ project supervision is done by Ph.D. faculty members. In case the load of Ph.D. faculty members reaches maximum (as defined by university/ HEC), the faculty members with MS degree (meeting University/ HEC thesis/ project supervision criteria) may be allowed to supervise the students. A student is allowed to drop MS Thesis/ Project 1 by the end of the 2nd week of semester.

1.2. Registration of Thesis/ Project 2

After successful completion of Thesis/ Project 1, students are required to register the Thesis/ Project 2 using the University's online registration portal (i.e., Flex) and complete the other registration formalities as per the academic calendar. The students registering for Thesis/ Project 2 should also submit a registration form outlining the work plan of Thesis/ Project 2 duly approved by their supervisors before the start of the semester. Students failing to do so are not

allowed to register for Thesis/ Project 2. A student can drop MS Thesis/ Project 2 by the end of the 2nd week of semester.

Students changing their area of research should get the changes evaluated by the supervisors, examiners, and MSRC before registering. In case of major change in the scope of the work, the student can be asked to repeat Thesis/ Project 1. Such a decision can only be made with the approval of the HoS/HoD.

1.3. The process to Change Thesis/ Project Title

A major change in thesis/ project title after the approval of proposal defense is not allowed. A student requests the MSRC for the change of thesis/ project title with reasons and justification. The MSRC solicits comments of the supervisor and the examiners in writing to know the fraction of change in the contents due to the change of the title. The MSRC considers the application and takes a decision.

A change in title that is considered minor by the MSRC is immediately incorporated. In case the change is considered as major, it is referred to the examiners for comments. If the change is considered as major by the examiners (i.e., in the case where the new title is largely different from the original idea approved in the proposal defense), it is not allowed. In this case, the student is asked to either drop/ withdraw Thesis/ Project 1 (as per university policy) or continue with the old title. Such a request is not required before the proposal defense as the proposal can be resubmitted. If a title change request is not received/ approved and the student changes the scope of the work, the evaluation is carried out based on the originally approved scope and the proposal.

1.4. Process for Change of Supervisor

A student may request the MSRC for the change of supervisor with reasons and justification. The MSRC solicits comments of the present

supervisor and the proposed supervisor (in writing) and forwards its recommendation to the HoS /HoD for final approval. The student is allowed to work on the same topic only if the current supervisor agrees to it. Otherwise, the student has to register with a new topic in Thesis/ Project 1 just like a fresh MS Thesis/ Project1 student. The supervisor change request form (see Appendix B) is submitted for the above-stated purposes.

1.5. Process for Change of Examiners

The request for changing an examiner is submitted by a supervisor to MSRC. The MSRC may accept the change request if it is satisfied with the justification. However, the supervisors cannot recommend the examiners. The examiners are allocated considering the topic relevance, faculty of the same program, and examination load of the examiners. In case a faculty member leaves the job, new examiners are allocated by the MSRC.

2. Thesis/ Project Examiners Allocation

Thesis/ Project examiners (for internal evaluations) are allocated by the concerned MSRC. Supervisors have no role in this allocation. A thesis/ project examiner is decided considering the match of thesis topic with examiner's specialties. In case, multiple faculty members can be assigned a thesis/ project, the MSRC selects the faculty member from the same program (e.g., an MSRC of CS program will select a faculty member from the CS department as a priority). In an examination committee of a thesis/ project, at least one examiner must be a Ph.D. faculty member.

3.   Thesis/ Project Examination Process

In this section, the overall examination processes for Thesis/ Project 1 and Thesis/ Project 2 are discussed.

Figure 2 gives an overview of Thesis/ Project 1 process, while figure 3 gives the overview of Thesis/ Project 2 process.
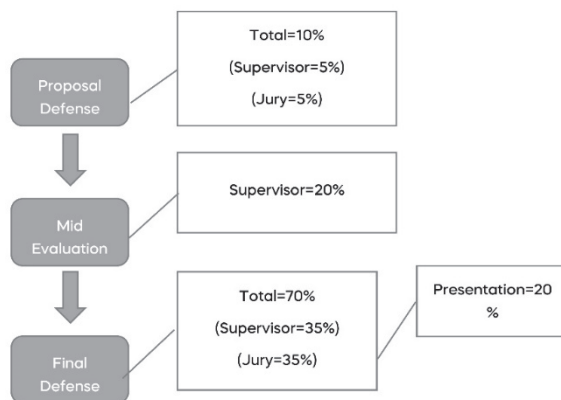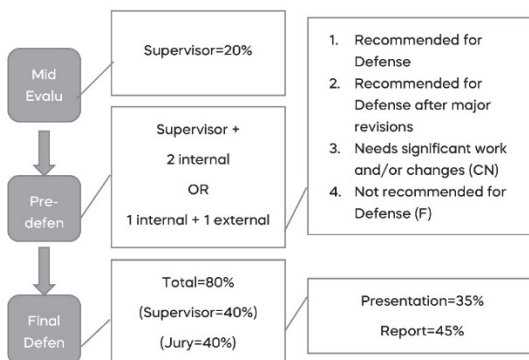

Figure 1-Marks Distribution for Thesis /Project 1

The details of the examination processes are as follows:

3.1.   Thesis/ Project 1 – Proposal Idea and Scope Approval

As the concerned MSRC finalizes the examiners' allocation (see Section 5) in the 2nd week of the semester, the examination committee (i.e., supervisor, examiner-1, and examiner-2) along with the student, are informed about it. The examination committee is asked to conduct the proposal evaluations during the 3rd-4th week of semester. For the proposal evaluation, the examiners will evaluate the proposal report submitted by the student, and if the examiners deem it necessary, the student will be required to prepare a presentation of 7 to 10 minutes (followed by a Q&A session), which mainly focuses on the introduction, motivation, and idea. The supervisor and both the examiners will evaluate the proposal by filling the Proposal approval form (see Appendix C). The idea is accepted "as it is" or accepted with "minor/ major changes". The students will be assigned 10% of thesis/ project 1 marks based on the proposal and presentation (Supervisor = 5%, Jury 5%). Student is expected to make all the necessary changes for the next examination milestone such as the Thesis/ Project 1 evaluation. For that, the comments and related response document (by the student) should be submitted with the Thesis/ Project 1 final document.

3.2.   Thesis/ Project 1 Mid Evaluations

The students are required to submit a thesis/ project 1 midterm evaluation to the supervisor between the 7th-10th weeks of the semester. The method of the evaluation is up to the individual supervisors. Based on this evaluation, students will be assigned 20% of thesis/ project 1 marks.

3.3.   Thesis/ Project 1 Final Evaluation

This section discusses the final evaluation of thesis/ project 1.

a)   <u>Thesis/Project 1 Report Submission</u>: The students are required to submit the final reports (as per the MS Thesis/ Project 1 template) at the start of the 14th week of semester.

b)   <u>Thesis/ Project 1 Evaluation</u>: The supervisors manage and convene a meeting (during the 14th—15th week of semester) with the concerned examiners to evaluate students' presentations. The supervisor and examiners submit their evaluations using the presentation evaluation form (see Appendix C). The presentation's evaluation has a 20% weight of the overall grade of Thesis/ Project 1.

c)   <u>Thesis/ Project1 Report Evaluation</u>: The reports are evaluated by the concerned supervisor and the examiners on the given evaluation form (see Appendix C). The report evaluation contributes to 50% of Thesis/ Project 1 weight. The report evaluation weights are as follows: Supervisor's weight = 25%, examiner-1's weight = 12.5%, and examiner-2's weight = 12.5%.

The final grades are finalized and disseminated by the concerned MSRC along with the review comments. An 'F' grade is awarded in Thesis/ Project 1 in any of the following cases (as determined by both the examiners and supervisor):

- If the problem is not clear or the problem is not scientifically correct;

- The literature review is insufficient or missing;

- The student is largely not able to explain the related works he/she has cited;

- The student fails to appear in the final defense as scheduled

by the department. However, genuine cases may be handled as per *Final Exam Retake Rule*.

d) <u>Submission of Revised Thesis/ Project 1 and Response Document:</u> The students are required to address all the comments and suggestions of the examiners. The revised version of Thesis/ Project 1 along with the review response document (see Appendix C) should be submitted by students within one week after receiving the Thesis/ Project 1 comments. The revised Thesis/ Project 1 report and response document is shared with the concerned examiners for information. The supervisor and MSRC shall ensure that plagiarized content is not included in the formal Thesis/ Project 1 report.

e) <u>Results Compilation and Conflict Resolution:</u> The final result of MS Thesis/ Project 1 is compiled by the concerned MSRC. In case of a conflict, whose handling is not described in the handbook, the HoS / HoD forms and heads an Arbitration Committee.

The overall marks distribution for thesis/ project 1 is given in Table 8.

Table 8: Marks distribution for Thesis/ Project 1.

	Supervisor	Jury	Total
Proposal	5	5	10
Midterm evaluation	20	-	20
Final Presentation (20)	10	10	70
Final Report (50)	25	25	
Total	60	40	100

3.4. MS Thesis/ Project 2 Midterm evaluation

The students are required to submit a thesis/ project 2 midterm evaluation in the 7th-9th week of the semester to their supervisors. The method of evaluation is up to the individual supervisors. Based on this evaluation, students will be assigned 20% of Thesis/ Project 2 marks.

3.5. MS Thesis/ Project 2 Final Evaluation

This section describes the complete process of MS Thesis/ Project 2 evaluation. Thesis/ Project 2 has internal and external evaluations as follows:

a) Thesis/ Project 2 Submission (For Pre-defense feedback & evaluation): The students are required to submit the final report (as per template) at the start of the 14ᵗʰ week of semester. It is the student's responsibility that the report is free from plagiarism. The similarity index and plagiarism check information must be attached with the report (see Section 4). The reports are disseminated by MSRC along with links of the evaluation forms to the concerned supervisor and examiners.

b) Thesis/ Project 2 Pre-defense Evaluation: The Thesis/ Project 2 report is evaluated by the concerned supervisor and at least two examiners. Both examiners may be internal, or one could be internal, while the other one could be external. This decision will be taken locally by the campus. In addition, the campus will decide whether the pre-defense feedback is sought through presentations or through a report. The evaluation is submitted on the given Pre-Defense Examiner Review forms (see Appendix C). The external examiner is nominated by the supervisor, and is approved by MSRC and the HoD based on relevance to the topic, experience, and research profile. For MS Thesis, the same criteria will be followed that has been set

by HEC for the supervision of MS Thesis. For MS Projects, the evaluator can be anyone that meets the criteria for MS Thesis evaluation, or he/she can also be someone belonging to the industry. In such a case, the evaluator should have at least 10 years of relevant industry experience and should be in a managerial position. The grading details of the internal evaluation are as follows:

I.   <u>Recommended for Defense</u>: The student is allowed to defend the thesis/ project in the external exam;

II.   <u>Recommended for Defense after major revision:</u> There are changes (discussed below) recommended by the examiners or the supervisor. In this case, the student has to submit the revised report after incorporating the changes and/or submitting a rebuttal;

III.   <u>Continue (CN):</u> There are significant changes (discussed below) recommended by the examiners or supervisor. In this case, the student has to re-register Thesis/ Project 2 in the next semester;

IV.   <u>Fail (F):</u> Thesis/ Project 2 is rejected, student must repeat Thesis/ Project 2.

For these grade options (i.e., *Recommended for Defense*, *Recommended for Defense after major revision*, *CN, and F*) a majority decision is taken into consideration. Other grade calculation possibilities and conflict resolution strategies are mentioned in Section 6.5.

c)   <u>Thesis/ Project 2 Grade Interpretation:</u> Following are general guidelines and interpretation of the thesis/ project 2 internal grades:

I.   "Recommended for Defense" grade:

- A "Recommended for defense" evaluation means that the thesis/ project is ready for external defense with minor changes to the report. The minor changes and the defense should be completed within the announced deadline by the MSRC.

II.   "Recommended for Defense after major revisions": This grade means that the student's work and performance is satisfactory, but there are major changes required to the report or some additional work that needs to be incorporated in order for the thesis/ project to be presented for external evaluation. In this case, the student will need to incorporate the suggested changes in the thesis/ project, and also prepare a compliance/ rebuttal report and submit to the supervisor.

III.   "Continue (CN)" grade: If a student's performance is "Satisfactory" but his/her thesis/ project has not matured to the level that can be defended, a "CN" (continue) grade is awarded and the student is allowed to work for another semester by re-registering in Thesis/ Project 2. A student acquiring CN grade will be allowed to submit and defend the thesis/ project anytime in the next regular semester subject to the consent of the supervisor and re-registration of the thesis/ project 2.

IV.   If an "F" grade is awarded, the student re-registers in Thesis/ Project 2. This process can be repeated with the consent of the MSRC and the supervisor unless the time limit for the degree has been reached. Apart from inadequate or unsatisfactory work, an "F" grade in Thesis/ Project 2 can also be awarded if:

- The student is not ready for defense and the student received a CN in the last semester;

- The student fails to submit the report or appear in the final defense if one is scheduled by the department. However, genuine cases may be handled as per Final Exam Retake Rule.

d) <u>Thesis/ Project 2 – Revised Version Submission:</u> A successful Thesis/ Project 2 pre-defense evaluation allows the student to submit the revised (if required) version of report by addressing all the comments and suggestions of the examiners along with a review response document (see Appendix C).

e) <u>Thesis/ Project 2 – Final Defense Committee:</u> The final examination committee contains the following members: 1) Supervisor, 2) Internal examiner (nominated by MSRC), 3) External examiner (nominated by the supervisor and approved by MSRC and HoD), and 4) Examination convener (a faculty member nominated by MSRC).

f) <u>Final Defense Evaluation:</u> The final evaluation process will be initiated after the submission of a revised version of Thesis/ Project 2. All the coordination, facilitation, and support for final defense will be provided by the MSRC staff. Further guidelines are as follows:

I. The student shall ensure that there is no plagiarized content in the thesis/ project and that it is according to the prescribed format. The report will be re-checked by the MSRC for plagiarism and format adherence. In case, the thesis/ project is plagiarized, the case will be handled as per the University policy.

II.   A public defense of the thesis/ project is arranged by the MSRC after receiving positive pre-dense reports from the examiners. The defense time is finalized with the consultation of the examination committee.

III.   The evaluation is only done by the examination committee that includes the external examiner, internal examiner, and the supervisor. This evaluation will be based on a presentation as well as the thesis/ project 2 report. The weight of each member's evaluation is as follows:

Presentation:

Supervisor=15%, Internal jury=10%, External jury=10%.

Report:

Supervisor=25%, Internal jury 10%, External jury=10%.

IV.   The results are separately submitted (see Appendix C for the defense evaluation form) by the supervisor, internal examiner, and external examiner. The final grade or result is compiled by MSRC and approved by the HoD/HoS.

V.   Hard bound copies are submitted after the finalization of the thesis/ project by the date intimated by the MSRC. Without submission of the hard copies, the student's official transcript and degree will not be issued.

VI.   On completion of all degree requirements, a completed form is generated by the academic office, verified by the MSRC Head, and submitted to the office of the HoS/HoD.

The overall marks distribution for Thesis/ Project 2 is given in Table 9.

Table 9: Marks distribution for Thesis/ Project 2.

	Supervisor	Jury (1 internal + 1 external)	Total
Midterm evaluation	20	-	20
Final Presentation (35)	15	20 (10+10)	80
Final Report (45)	25	20 (10+10)	
Total	60	40	100

3.6.   Absence of Student in an evaluation

A student who does not appear for an evaluation gets an "F" grade in the evaluation unless the student has a "genuine" excuse and gets an application for the delayed final evaluation approved from the HoD/HoS. If a student knows the reason in advance, the student should submit an application to the HoD/HoS. At least one week prior the final evaluation. In case of rejection of the application, the student needs to appear for the final evaluation.

In case of some unforeseen incident very near or on the final evaluation day, the student informs the department for the delayed final evaluation within seven days of the final evaluation.

3.6.1.1. Thesis/ Project 2 Grade Calculation and Conflict Management

Following are different conflicting scenarios in the <u>final internal evaluation</u> of Thesis / Project 2 are handled as follows:

- There cannot be two consecutive CN grades. Therefore, if a student (with a CN grade in the previous semester) still does not meet the minimum requirements (as per the satisfaction of supervisor and examiners) he/she is awarded an "F" grade;

- If all the three evaluations are different, a three-member conflict resolution committee will be formed by MSRC. The committee will consist of a supervisor and two faculty members other than the examiners. The conflict resolution committee will re-examine the student and a majority decision will be adopted to finalize the grade;

- If a supervisor gives an "F" grade to a student but both the internal examiners do not give an "F" grade, the student is awarded a "CN" grade in the current semester and allowed to work in the next semester.

Different conflicting scenarios of <u>pre-defense reviews</u> of a thesis/ project report are handled as follows:

- **If both the internal and external examiners choose the "Fail" option of the pre-defense review report, the student is awarded an "F" grade in Thesis/ Project 2 and allowed to register in Thesis/ Project 2 in the next semester;**

- **If only the external examiner chooses the "Fail" option of the pre-defense review report, the MSRC can take the opinion of another expert to reach a decision. In case of a positive report from the expert, the defense is arranged. In the other case, the student is awarded an "F" grade in Thesis/ Project 2 and would be allowed to register in Thesis/ Project 2 in the next semester (to be determined by the MSRC);**

- **In case of a conflicting scenario, MSRC will constitute a three-member Conflict Resolution Committee (excluding internal examiner and supervisor) headed by the HoD/HoS.**

4. Plagiarism

A thesis/ project report is checked for plagiarism using Turnitin software. No amount of verbatim copying is allowed in the report unless the copied text is referenced and placed in quotation marks. Any text that is copied from any other source, regardless of it being referenced, is considered plagiarism. The maximum tolerable level of similarity index calculated using the software is less or equal to 19% (excluding bibliography and template pages) and not more than 5% from any single source. In case of plagiarism, the MSRC evaluates the severity of the issue. If the case is determined by MSRC to be a minor issue, the student may be asked to revise the report unless the issue is resolved. If the case is determined by MSRC to be a major issue, the case will be handled as per the University policy.

5. Conflict of Interest

Any conflict of interest on part of the HoD/HoS, any member of MSRC, member of graduate faculty, supervisor, or examiner must be declared. Following are some of the cases in which conflict of interest must be declared and avoided:

-        In case an MS student is a relative of a faculty member, the faculty member cannot act as a supervisor, examiner, and cannot be part of any meeting that is evaluating or making any decision for the evaluation of the student. Such a conflict of interest must be declared to the HoD/HoS and MSRC;

-        In case an MS student is an acquaintance of a faculty member, the conflict of interest must be publicly declared. The HoD/HoS and MSRC may request the faculty member to refrain from acting as an examiner, supervisor, or panel member;

-        If a proposed external examiner has a paper co-authored with the student related to his/her MS thesis/ project, this should be considered as a conflict of interest and the examiner should not be allowed.

6.   Graduate Thesis/ Project Process Improvement

1.   The thesis/ project process outlined in the handbook is drafted based on the various experiences at the Islamabad Campus of FAST-NUCES. The process needs to be continuously improved and adapted according to the resources available, the maturity of the program, and new experiences.

2.   Since the thesis/ project process affects most of the graduate faculty, special care needs to be taken to ensure that processes are improved with consultation and agreement of the majority of the Ph.D. faculty.

Appendix A

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

MS Thesis/ Project 1 Supervisor Consent Form

Part A - To be filled by the student

Roll No: _____   Name: _____   CGPA: _____

E-mail: _____   Mobile #: _____   Semester: _____

Registration: ☐ Thesis   ☐ Project   **Program Name:**
_____

Thesis/Project Title*: _____

_____

MS Thesis or Project Potential Areas – *Write down the most closely related area(s)**

☐ I have attached the thesis 1-page proposal abstract with the form.

☐ I hereby declare that I will be in touch with my supervisor during the thesis/project. Moreover, I will do my sincere efforts in completing all the milestones set and advised by my supervisor.

Date:_____   Signature of Student:_____

Part B - To be filled by the supervisor

☐ **I agree to supervise this student.**

The proposed idea is suitable for MS Thesis/ Project in <Degree Title>

Supervisor Name: _____ Date: _____Signature: _____

Part C – For official use

Signature: _____ Signature: _____

Head MSRC   **HoD/HoS**

Registration Date: _____ Academic Officer: _____

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

MS Thesis/ Project 2 Supervisor Consent Form

Thesis / Project 2

(Please encircle the appropriate option)

Roll No: _____ Name: _____ E-mail: _____

Mobile #: _____ CGPA: ____ Credits Earned: ___   Date: _____

Registration: ☐ Thesis   ☐ Project   Program Name:_____

Grade of Thesis/Project 1: _____,   Thesis/Project-1 Qualification
Semester: ___ _____

Proposed Plan for Thesis/Project-2

Sr. #	Task Title	Goal/ Objective	Tentative Completion Date

Declaration: I hereby declare that I will be in touch with my supervisor during the research / development phase. Moreover, I will do my sincere efforts in completing all the milestones set and advised by my supervisor.

Date:_____Signature of Student: _____

Remarks by supervisor (if any):

_____

_____

Name and Signature of Supervisor: _____

For official use

Remarks from MSRC:

_____

Signature (Head, MSRC): _____

Signature (HoD): _____

Registration Date:_____, Signature of the Academic Officer: _____

Appendix B

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Thesis/ Project Title Change Form

Roll No: _____ Name: _____ E-mail: _____

Degree Program: _____, Current MS Enrolment (1 or 2): _____

Current Title: _____

New Title: _____

Reason or Justification:

_____

_____

_____

Date

Student's Signature

Endorsement and Signatures (To be filled by the Supervisor)

Estimated change in the contents due to the title change (percentage): _____

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Comments by the Supervisor:

_____

_____

 _____   _____   _____

Name   **Signature (Supervisor)**   **Date**

Comments by the MSRC Head:

_____

_____   _____   _____

Program Name   **Head (MSRC)**   **Date**

Thesis/ Project Supervisor Change Form

Roll No: _____ Student Name: _____, Program Name:_____

Thesis Title: _____

Current MS Enrollment (1 or 2): _____,

Intended to Register (1 or 2): _____

<div>

Intellectual Property Clause (in case of change of primary supervisor)

Idea Proposed by: ☐
Supervisor   ☐ Student

Supervisor allows the student to continue his/her research on the same topic?

(Only applicable if the supervisor proposed idea)

        ☐ Allowed   ☐ Not Allowed *(In this case student has to sign the following affidavit)*

If the initiator of the change of supervisor request is the student and the supervisor proposed the idea, the student has to sign the following affidavit and he/she will be registered in Thesis 1.

I _____   surrender all the work done till the date   _____ under   the   supervision   of   _____.
My current supervisor _____ will be the sole owner of

</div>

the intellectual property of this work and can use this work as he sees fit.

Remarks by Initiator (Supervisor/Student):

_____

_____

_____   _____

   Date   Initiator's Name

Initiator's Signature

Adding a Supervisor:

Position	Name	Designation	Department	Start Date
Supervisor				
Co-Supervisor				

Deleting a Supervisor:

Position	Name	Designation	Department	Start Date
Supervisor				
Co-				

Supervisor				

Remarks by Head, MSRC:

_____

Decision: Approved / Not Approved

APPENDIX C

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

(Thesis/ Project Evaluation Forms)

Thesis/ Project 1 - Proposal Approval Form

S. No.	Question / Comment	Decision	Marks
1	The student has effectively presented what he/she wants to do.	Yes /No /Partially	1—10
2	The student was clear about the idea of why he/she wants to do it?	Yes /No /Partially	1—10
3	Decision: (a) Accept (b) Accept (with minor changes) (c) Accept (with major changes)		
	Comments/Suggestions (Optional)		

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

<u>**Thesis/ Project 1 (Midterm) - Evaluation Form**</u>

S. No.	Question / Comment	Scale
1	The student was regular in the meetings and consistently working during the semester.	1—10
2	Are you satisfied with the student's work progress?	1—10
3	The student has sufficient background knowledge and is well aware of the motivation of the research/ project.	1—10
4	The student has done a satisfactory literature review/ analysis of related work.	1—10
Overall Comments/Suggestions (Compulsory)		

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Thesis/ Project 1 (Final) - Presentation Evaluation Form

S. No.	Question / Comment	Scale
1	The topic introduction was comprehensive.	1—10
2	The student has presented sufficient literature review/ analysis of related work and has a solid knowledge of state-of-the-art.	1—10
3	The identified gap was well established and the research questions/ project objectives were concrete and focused.	1—10
4	The proposed approach was technically sound and presented well.	1—10
5	The presentation quality was adequate and the student handled questions well.	1—10
Overall Comments/Suggestions (Compulsory)		

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Thesis/ Project 1 (Final) - Report Evaluation Form

Section	Question / Comment	Scale
To be filled by Supervisor only	The student was regular in the meetings and consistently working during the semester.	1—10
	Are you satisfied with the student's work progress?	1—10
Abstract	Does the abstract highlight the main contributions of the work?	1—5
Introduction	Does the introduction clearly describe the background of the domain, motivation, and contributions of the study?	1—10
Literature Review	Is the literature review complete and sufficient?	1—10
	Has the related work comparison been provided?	1—10
Research Gap and	Is the research gap and problem statement clearly defined in context with the literature?	1—10

Section	Question / Comment	Scale
Problem Statement	Are the objectives and research questions/ project objectives concrete and focused?	1—10
Proposed Solution / Methodology	Is the contribution of the proposed approach/methodology technically sound?	1—5
	Does the student provide the detail about the solution (using a flowchart, algorithm, system model, etc.)?	1—5
Timeline	Is the thesis/ project timeline appropriate?	1—5
Report Quality	Is the language of the document correct and according to acceptable international standards for a graduate thesis?	1—5
	Are the images, tables, and listings visible and readable?	1—5
Overall Comments (Compulsory)		

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Thesis/ Project 2 (Midterm) - Evaluation Form

S. No.	Question / Comment	Scale
1	The student was regular in the meetings and consistently working during the semester.	1—10
2	Are you satisfied with the student's work progress?	1—10
3	The student has completed the implementation of the proposed scheme/methodology.	1—10
4	The student is well aware of the evaluation plan of the proposed scheme.	1—10
Overall Comments/Suggestions (Compulsory)		

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Thesis/ Project Pre-Defense Review Form

Title	
Student's Name	
Supervisor's Name	
Examiner's Name	
Due Date	

Supervisor's/ Examiner's Signature: _____

Date: _____

S. #	Aspect	Please encircle the appropriate choice		
1	Is the title appropriate for the thesis/ project?	Yes	No	Unsure
	If not, then please suggest a suitable alternate _____ _____			

S. #	Aspect	Please encircle the appropriate choice		
2	Is the abstract clear and concise and highlight the main contributions	Yes	No	Unsure
Please provide detailed comments Comments: _____ _____				
3	Does the Introduction clearly describe the motivation and research contributions/ project objectives?	Yes	No	Unsure
Please provide detailed comments with specifics such as references the student needs to lookup Comments:_____ _____ _____				
4	Does the literature review clearly identify the research gap and highlights the	Yes	No	Unsure

S. #	Aspect	Please encircle the appropriate choice		
	differences with the thesis/ project			

Please identify any problem areas

Comments:_____ _____

_____

_____

5	Does the research content contain enough scientific rigor for a graduate level thesis/ project?	Yes	No	Unsure

Please provide the necessary comments

Comments:_____

_____

_____

6	Is the evaluation of the work technically sound?	Yes	No	Unsure

S. #	Aspect	Please encircle the appropriate choice		
Please suggest additional references, that you are aware of, to the student _____ _____ _____				
7	Is the overall organization of the thesis/ project satisfactory?	Yes	No	Unsure
Please suggest desired changes Comments:_____ _____ _____				
8	Is the English (spelling, grammar, usage) satisfactory?	Yes	No	Unsure
Please give specific recommendations Comments:_____				

S. #	Aspect	Please encircle the appropriate choice
	_____ _____	

Comments for the student and supervisor

Comments for the MS Research Committee (not to be shared with supervisor or student)

Please specify (tick) one of the following:

Recommended for Defense	
Recommended for Defense after major revisions	
Needs significant work and/or changes (CN)	
Not recommended for Defense (F)	

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

<u>Thesis/ Project - Review Response Templates</u>

Dear MSRC, <Program Name>

I would like to forward my sincere thanks to my supervisor (<Name of Supervisor>) and examiners (<Examiner-1> and <Examiner-2>) for the detailed and valuable suggestions, which had significantly contributed to the improvements in the <thesis/ project> report.

I have carefully revised the thesis/ project and provided the relevant responses to the concerns raised by the supervisor and examiners. I am also grateful to the MSRC <Program Name> for facilitating the MS thesis/ project examinations. I declare that this thesis/ project report is my original work and the contents presented in the thesis/ project have not been published, except for the cited information.

Thank you.

Sincerely,

<Student Name & Reg. No.> <Signature>

Thesis or Project Title: < Title>

Supervisor: <Supervisor Name> <Signature>

Sample Comments and Responses
Comment No. 01: In the subsection System architecture of FusionCL, you have described the global architecture in few paragraphs. I suggest including an algorithm rather than a discussion to describe the solution formally.
Response No. 01: We agree with this very useful suggestion of the examiners that will enhance the quality of the thesis. In the revised thesis report, we have now described the solution formally. In this regard, a new section named *Kernel Fusion Algorithm* has been added (Section 3.4, Page 23) in the revised thesis report.
Comment No. 02:
Response No. 02: We agree with the examiners' observation that machine learning algorithms are time-consuming. We have now included the training and testing time-related data of the employed machine learning algorithms in Section 5.2 of the revised thesis report (see Table 3,

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

<u>Thesis/ Project - II Defense (Final) - Evaluation Form</u>

Roll No: _____Student's Name: _____

Title: _____

_____

Defense Date: _____

☐ Accepted with No or
Minor Modifications

☐ Accepted with Major
Modifications

☐ Marks Awarded:

A+	90 - 100
A	86 - 89
A-	82 - 85
B+	78 - 81
B	74 - 77
B-	70 - 73
C+	66 - 69
C	62 - 65
F	< = 61

Suggestions/ Modifications and Comments

_____

☐   **Examiner**   ☐   **Supervisor**

_____   _____   _____

Examiner   Organization   Signature

APPENDIX D

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Thesis/ Project 1 - Report Contents

The Thesis/ Project 1 report consists of the following contents:

Abstract

1. Introduction & Motivation

2. Literature Review

2.1   Extensive related work

2.2   Research Gap

2.2   Problem Statement

2.3   Research Objectives / Research Questions/ Project Objectives

A table summarizing the research gaps and related work

3. Proposed Approach / Solution / Research Methodology

3.1   System Architecture/ Flowchart, etc.

3.2   Proposed Methodology

3.3   Proposed Evaluation Metrics

4. Timeline and Goals for the next semester

5. References

National University of Computer and Emerging Sciences,

<Campus>

<Department Name>

Thesis/ Project 2- Report Contents

Project 2

The Project 2 report can differ based on the nature of the project. However, all project 2 reports are suggested to contain the following headings:

I. Abstract (Key idea)

II. Introduction (Description, motivation, benefits of the project?)

III. Background and related work (Brief description of similar projects)

IV. Methodology

  i Methodology Diagram and Process Diagram

  ii Tools and platform used and their relevant to the project.

  iii Project Management Plan and Process Model

  iv Development process should be documented in the following chapters:

   a. Requirements Specifications

   b. Design Description

   c. Test Documentation

V. **Application**

    i   **Important screen shots with brief explanation**

    ii   **Key algorithms/techniques/outcomes (e.g. code + explanations)**

    iii   **Evaluation (Results/feedback/surveys etc.)**

    VI.   **Conclusion and Future Work**

    VII.   **Bibliography (References)**

    VIII.   **Appendices**

The format for MS thesis is suggested to be as follows:

    i   **Abstract**

    ii   **Introduction**

    iii   **Literature Review and Research Gap**

    iv   **Research Methodology* (* optional)**

    v   **Proposed Work**

    vi   **Results and Discussion* (*can include evaluation, validation, and implementation details)**

    vii   **Conclusions & Future work (short summary and detailed contribution)**

    viii   **Bibliography (references)**

    ix   **Appendices**

All MS Theses/Projects should comply with the following guidelines

1. **Preparation of Manuscript and Copies**

    1.1 The thesis needs to be prepared using a standard text processing software and must be printed in black text (color for images, if necessary) using a laser printer. The standard font shall be Times New Roman 12 pts with 1 line spacing.

    1.2 The thesis must be printed or photocopied on both sides of a white paper to meet our Green Environment obligations. All copies of thesis pages must be clear, sharp, and even, with uniform size and uniformly spaced characters, lines, and margins on every page.

    1.3 The thesis should be free from typographical errors.

    1.4 Three copies of the good quality paper (minimum 70 gm) are submitted.

2. **The title page shall contain the following details:**

    2.1 The full title of thesis in 24 pt font size properly centered.

    2.2 Full name of the candidate in 21 pt font size properly centered.

    2.3 Name of degree in 21 pt font size properly centered.

    2.4 "A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science ([Program name e.g., Computer Science]) at the National University of Computer & Emerging Sciences"

    2.5   A replica of the University Monogram.

    2.6   Name of the Department in 17 pt font size properly centered.

    2.7   Name of the University in 17 pt font size properly centered.

    2.8   Year of submission in 17 pt font size properly centered.

3.   The front page of hard binding shall contain the following details:

    3.1   Full title of thesis in 24 pt font size properly centered.

    3.2   Full name of the candidate in 21 pt font size properly centered.

    3.3   Name of degree in 21 pt font size properly centered.

    3.4   "A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science ([Program Name]) at the National University of Computer & Emerging Sciences"

    3.5   A replica of the University Monogram.

    3.6   Name of the Department in 17 pt font size properly centered.

    3.7   Name of the University in 17 pt font size properly centered.

    3.8   Year of submission in 17 pt font size properly centered.

4.   Plagiarism Undertaking

    4.1   Undertaking by the student to indicate that this is his/her own work and he/she has not plagiarized it. The template of this page is attached at the end of this appendix.

5.   **Author's Declaration**

         5.1   Declaration by the student to indicate that this is his/her own work and he/she has not presented it for any other degree in any part of the world. The template of this page is attached at the end of this appendix.

6.   **Certificate of Approval**

         6.1   Approval of the examination committee. The template of this page is attached at the end of this appendix.

7.   **Abstract**

         7.1   An abstract of 500 words (maximum) shall highlight the important features of the thesis. It is to be a brief description of a scholar's work and should be organized in the following order (without the explicit use of these headings):

                 I.   Statement of the Problem

                 II.   Procedure and/or Methods

                 III.   Results

                 IV.   Conclusions

8.   **Acknowledgments [Optional]**

         8.1   The acknowledgments should not be more than one page.

9.   **Contents**

         9.1   The contents shall follow the Abstract or Dedication or Acknowledgment whichever is the last one. It shall enlist the chapter number, titles of the chapters, section, and sub-section using decimal notation, as in

the text, with corresponding page number against them, placed to the right.

9.2   After the Contents, List of Figures (if applicable) should start on a separate page.

9.3   After the list of Figures, List of Tables (if applicable) should start on a separate page.

9.4   After the list of Tables, List of Algorithms (if applicable) should start on a separate page.

10.   Abbreviation Notation and Nomenclature

10.1   A complete list of all abbreviations, notations, and nomenclature including Greek alphabets with subscripts and superscripts shall be provided after the list of algorithms. (As far as possible, generally accepted symbols and notation should be used.)

11.   Size of Paper and Margins

11.1   A4 size white paper of 70 gm or more (height 297 mm, width 210 mm) be used, no restriction is placed on drawings and maps.

11.2   The top and bottom margins should be 25 mm, whereas the left margin should be 35 mm for odd page numbers and 25 mm for even page numbers; similarly, the right margin should be 35 mm for even page numbers and 25 mm for odd page numbers (Additional margin of 10 mm is to cater for gutter margin that may be utilized for binding.) for both textual and non-textual (e.g., figures, tables) pages.

11.3   Content should not extend beyond the bottom margin except for completing a footnote, last line of

chapter/subdivision, or figure/table caption.

11.4 A sub-head at the bottom of the page should have at least two full lines of content below it. If the sub-head is too short to allow this, it should begin on the next page.

11.5 All tables and figures should conform to the same requirements as text. Color may be used for figures.

If tables and figures are large, they may be reduced to the standard size (provided the reduced area is not less than 50% of the original) and /or folded just once to flush with the thesis margin (if the page size does not exceed 250x360 mm).

12. **Pagination**

12.1 Beginning with the first page of the text in the thesis (Chapter 1), all pages should be numbered consecutively and consistently in Arabic numerals through the appendices. The subsequent chapters shall begin on a fresh page and page numbers, at the first page, shall be printed at the bottom center.

12.2 Page numbers prior to Chapter 1 should be in lower case Roman numerals. The page numbers should be displayed from table of contents onwards. All the pages prior to starting page of the table of contents have to be counted in numbering; however, the page number should not be displayed on them. The title page should not to be included in the counting of pages.

12.3 All page numbers should be placed without punctuation at the bottom center. Page numbers should also use Times New Roman 12 pts.

12.4 All pages – except the first page of the chapter – may

have the section headings on the top right of the odd page and the chapter title on the top left corner of the even page as a header. The header should be underlined. The text in the heading should be in Times New Roman 10 pts. These features are optional and may be omitted.

13. Chapter Format

13.1 Each chapter shall begin on a fresh page with an additional top margin of about 65 mm. Chapter number and title shall be left-justified with 25 pt font size for chapter title and 17 pt. for chapter number in title face by making the first letter capital of every word other than prepositions. A vertical gap of about 1 line (at 25 pt font size) shall be left between the chapter and chapter title lines and 2 lines between the chapter title line and the first paragraph. The chapter should start with an Introduction Section except for the first chapter (Introduction) and end with a "Summary" Section that should summarize the contributions of the chapter.

14. Tables, Figures, Equations, and Quotations

14.1 A table generally refers to numerical data or textual information presented in a column format.

14.2 All graphs, charts, line drawings, maps, photographs, or other graphical representations are considered as figures.

14.3 All tables (tabulated data) and figures (charts, graphs, maps, images, diagrams, etc.) should be prepared, wherever possible, on the same paper used to type the

text and conform to the specifications. They should be inserted as close to the textual reference as possible and should appear after the textual dereference.

14.4   Tables, figures, and equations should be numbered sequentially either throughout the thesis or chapter-wise using Arabic numerals. They are referred to in the body of the text capitalizing the first letter of the word and number, for instance, Table 17, Figure 24, Equation (33), or Table 5.3, Figure 3.11, Equation (4.16), etc.

14.5   All titles of figures and tables should be on the same page as the figure or table and should be labeled appropriately. The legend should be placed beneath the figure and above the table.

14.6   Tables should be inserted in the appropriate place in the text; however, if a group of tables relating to one topic is more than 4 consecutive pages then the table group should appear as an appendix.

14.7   Diagrams, maps, tables, etc. exceeding A4 size (8.5 inches x 11 inches or 21.5 cm x 28 cm) should be folded to read as a right-hand page when opened.

14.8   Images, Photographs, etc. must be scanned in resolution exceeding 200dpi with 256 grayscales for the monochrome images and 24 bit per pixel for the color images.

14.9   Any quotations presenting primary data (e.g. based on interviews and focus group discussions) should be typed in Times New Roman 12 pts italic. All such quotations should start on a separate line and be indented 0.5 inches on each side so that they appear

distinct from the text. No quotation marks should be used. However, a quotation that is less than 10 words long may be included within a paragraph, in which case quotation marks should be used; the font size to be used should remain Times New Roman12 pts italic.

14.10   A figure or table may be included with the text, or if it is larger than 4 inches long it may appear on a separate page with no text. If a table or figure will not fit on the page of the first mention move it to the top of the next page and fill in the text page that will normally come after the figure or table.

14.11   Leave 2 double line spaces between the text and the figure table. If a caption is longer than a line it should be single-spaced.

14.12   Special requirement for tables: Left align table title above the table. Table captions or descriptions should be left-aligned under the table.

14.13   The standard font of Times New Roman 12 pts should be used in tables, where possible. However, in case a thesis has many large tables, the font size may be reduced to Times New Roman 8 or 10 pts depending on the size of the table.

15.   Font Size

14.1   Title of Chapter   25

14.2   Level 1 / Level 2 / Level 3 headings   17 / 14 /12

14.3   Text   12

14.4   Footnotes   10

16.   Footnotes

    16.1   There are two types of footnotes: "reference" and "content". Reference footnotes refer to the source from which the information has been taken; content footnotes make incidental comments, amplify, or make acknowledgments. You must place content footnotes at the bottom of the page they refer to, regardless of whether the regular or scientific format is used.

17.   Length of Thesis

    17.1   It is recommended that work presented as MS thesis, the allowed size is in between 40-150 pages (counting from the first page of Introduction up to the last page of conclusion).

18.   The layout of the Thesis

    a.   Title Page

    b.   Author Declaration

    c.   Plagiarism Undertaking

    d.   Abstract / Summary

    e.   Dedication

    f.   Acknowledgments

    g.   Contents

    h.   List of Figures (where applicable)

    i.   List of Tables (where applicable)

    j.   List of Algorithms (where applicable)

    k.   Abbreviations, Symbols, and Nomenclature

l.   Introduction Chapter (Set the scene and problem statement). This chapter should clearly define the problem statement and its motivation. Afterward, it should also outline a summary of the novel contributions of the thesis and their impact on the field

m.   Review of the literature/related work and critical assessment, relation to own work. This must be a separate chapter irrespective of its length.

n.   Methodology (Materials and methods), Results and discussion (analysis, design, implementation, and interpretation of results

o.   Conclusions (summary and detailed contribution)

p.   Recommendations for future work

q.   Bibliography (references)

r.   Appendices (where applicable).

19.   **Bibliography and References**

19.1   References should be placed at the end of the last chapter and written on a separate sheet. The IEEE Style has been approved by the BASR for standard citation in Computer Science and Engineering and referencing purpose for reports and theses as at Annex A.

20.   **Appendices (if applicable)**

20.1   Published work from the thesis might be included as an appendix (Reprints/ proof/ preprint) or any other information specific to the respective discipline. All appendices should have the appendix heading on top of the page as a header. This text should be right

justified and in Times New Roman 12 pts bold.

20.2   There should be a reference to each appendix in the main body of the thesis.

21.   Binding

21.1   The final thesis and published work presented for higher degrees must be bound at the expense of the scholar in a permanent form or in a temporary (hard binding will be provided after the defense of the thesis) where printed pamphlets or off-prints are submitted in support of a thesis, they must be bound in with the thesis or bound in such manner as Binderies may advise. To meet our obligations regarding Green Environment, the thesis pages should be printed (or photocopied) on both sides of a paper.

21.2   The front cover should be the same outlined in Heading 2. The color of binding should be black for all MS degree programs.

21.3   Spine of the thesis should be a simple imprint of the front cover mentioned in Section 2.

References:

As per the departmental guidelines

APPENDIX E

Plagiarism Undertaking

I take full responsibility for the research work conducted during the MS Thesis titled <THESIS NAME>. I solemnly declare that the research work presented in the thesis is done solely by me with no significant help from any other person; however, small help wherever taken is duly acknowledged. I have also written the complete thesis by myself. Moreover, I have not presented this thesis (or substantially similar research work) or any part of the thesis previously to any other degree-awarding institution within Pakistan or abroad. I understand that the management of National University of Computer and Emerging Sciences has a zero-tolerance policy towards plagiarism. Therefore, I as an author of the above-mentioned thesis, solemnly declare that no portion of my thesis has been plagiarized and any material used in the thesis from other sources is properly referenced. Moreover, the thesis does not contain any literal citing of more than 70 words (total) even by giving a reference unless I have the written permission of the publisher to do so. Furthermore, the work presented in the thesis is my original work and I have positively cited the related work of the other researchers by clearly differentiating my work from their relevant work. I further understand that if I am found guilty of any form of plagiarism in my thesis work even after my graduation, the University reserves the right to revoke my MS degree. Moreover, the University will also have the right to publish my name on its website that keeps a record of the students who plagiarized in their thesis work.

<CANDIDATE NAME & SIGNATURE>

Date:

Author's Declaration

I, <u>**<CANDIDATE NAME>**</u>, hereby state that my MS thesis titled <u>**<THESIS TITLE>**</u> is my work and it has not been previously submitted by me for taking partial or full credit for the award of any degree at this University or anywhere else in the world. If my statement is found to be incorrect, at any time even after my graduation, the University has the right to revoke my MS degree.

<CANDIDATE NAME & SIGNATURE>

Date:

Certificate of Approval

It is certified that the research work presented in this thesis, entitled "<u>*<<Title>>*</u>*" was conducted by <<Student>> under the supervision of*

<u>*<<Supervisor>>*</u>

No part of this thesis has been submitted anywhere else for any other degree.

This project is submitted to the <u>department of <name></u> in partial fulfillment of the requirements for the degree of Master of Science in "<<program>>"

at the National University of Computer and Emerging Sciences

Islamabad, PAKISTAN <<Campus>>

<u>*<<Date>>*</u>

Candidate Name: _____ **Signature:** _____

Examination Committee:

a)   **Name:** _____ *<<External>>* _____
_____ **Signature:** _____

Designation, University,

b)   Name: _____ <<Internal>> _____

_____ Signature: _____

Designation, University

Supervisor:

c)   Name: _____ *<<Supervisor>>* _____ Signature:
_____

Designation

 _____

HoD/HoS, National University of Computer and Emerging Sciences,
<<Campus Name>>

Plagiarism

Plagiarism in thesis and project document is not allowed. It is the responsibility of the student to ensure that the thesis/project report adheres to the University guidelines as specified by the Higher Education Commission. HEC has placed an upper limit of 19% similarity index on thesis/project reports. All student reports should have similarity index less than the limit allowed by HEC.