JSS ACADEMY OF HIGHER EDUCATION & RESEARCH

JSS ACADEMY OF HIGHER EDUCATION & RESEARCH
(DEEMED TO BE UNIVERSITY) MYSURU

JSS GLOBAL INSTITUTE for FUTURE TECHNOLOGIES

JSS AHER GIFT
GLOBAL INSTITUTE FOR FUTURE TECHNOLOGIES
A GIFT TO THE FUTURE, THE RESPONSIBILITY OF EVERY PARENT.
NURTURE | EDUCATE | EMPOWER | INNOVATE | TRANSFORM

JSS GIFT REGULATIONS

for

Integrated M.Sc. Programs

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JSS GIFT

JSS Global Institute for Future Technologies is an innovative initiative at JSS Academy of Higher Education & Research. This seeds the creation of an institution for Higher Education in Technology, accomplishing the twin purposes of:

1. Encouraging the well-established non-technology sector of education — Medicine, Pharmacy, Life Sciences, Biological Sciences, and Dental Sciences — in JSS AHER to become tech-savvy and appreciate the adoption of intelligent technologies; and
2. Utilizing the rich data sources available and continuously being generated, together with the advanced instrumentation available in the afore mentioned non-technology sector, for the purpose of designing intelligent systems, data analytics, and related future smart technologies through a proper blend of research and higher education in technology.

The launching of JSS GIFT and its inclusion into the fold of JSS AHER will ensure the growth of JSS AHER as a stronger multidisciplinary university and will facilitate cross-disciplinary education and research in the true sense.

While JSS GIFT will design very high-end futuristic technology courses, it will also design courses leading to the provision of an Add-on supplement of technology for the benefit of the non-technology sector in JSS AHER.

The name, **JSS Global Institute for Future Technologies (JSS GIFT)**, carries both strategic and symbolic value.

- Global signals the intent to serve students, faculty, partners, and research collaborators beyond a local or regional frame.
- The institute conveys seriousness, permanence, and interdisciplinary academic identity.
- Future Technologies provides the broad canvas required for AI, digital health, robotics, future computing, mobility, sustainability, semiconductors, space applications, and technologies not yet invented.
- JSS GIFT is a memorable acronym with strong educational resonance: education is the greatest JSS GIFT we can offer the future.

It creates a distinctive identity for JSS AHER while retaining the flexibility to build schools and programs under it with more precise disciplinary names, such as Intelligent Systems, Intelligent Health Systems, Future Computing, and Robotics.

EXECUTIVE SUMMARY

The JSS Global Institute for Future Technologies (JSS GIFT) at JSS Academy of Higher Education & Research is conceived as a forward-looking, multidisciplinary academic

platform that integrates advanced technologies such as Artificial Intelligence, Data Science, and Intelligent Systems into traditionally non-technical domains like medicine, pharmacy, and life sciences. The institute aims to foster cross-disciplinary education and research by leveraging existing clinical and scientific data, along with modern computational tools, to develop innovative, technology-driven solutions for future challenges.

The academic framework of JSS GIFT is centred around a flexible Integrated M.Sc. program, primarily designed as a 5-year course requiring 196 qualifying credits, with provisions for extension to an M.Sc.-Honors degree. In alignment with the National Education Policy (NEP) 2020, the program offers multiple entry and exit options, allowing students to earn certifications, diplomas, B.Sc., or B.Sc.-Honors degrees at different stages based on completed credits. Additionally, lateral entry pathways enable students with diplomas or prior degrees to join at appropriate levels, ensuring inclusivity and academic mobility.

The curriculum emphasizes experiential, skill-based, and outcome-oriented learning, moving beyond traditional lecture-based teaching. It integrates lectures, transactions, practice sessions, and self-learning, with a strong focus on hands-on training, research, internships, and real-world problem-solving. The learning philosophy is structured around the principles of learning, building, experiencing, discovering, creating, and leading, aiming to produce graduates who are technologically proficient, research-oriented, and socially responsible.

The teaching-learning process promotes the incorporation of tech-savvy platforms for embedding AI-enabled learning and monitoring the learning.

A robust credit-based system underpins the academic structure, aligned with the Choice-Based Credit System (CBCS) and the National Credit Framework. Students can customize their learning pathways through electives, Add-on certifications, interdisciplinary projects, and credit transfers. The system also includes mandatory non-qualifying credits focusing on ethics, life skills, and societal values, ensuring holistic development.

The assessment system is continuous and comprehensive, with a strong emphasis on formative evaluation. About 70% of the assessment is based on continuous formative components such as group assignments, presentations, and individual assessments, while 30% is based on summative end-semester examinations. This approach prioritizes analytical thinking, application of knowledge, and skill development rather than rote learning. Performance is evaluated through a relative grading system using SGPA and CGPA metrics.

Academic progression is governed by clear criteria, including a minimum attendance requirement of 75% and minimum performance thresholds in both formative and summative assessments. The system incorporates flexibility through provisions such as supplementary examinations, repeat courses, and semester drops, allowing students to

manage their academic pace. Opportunities for summer semesters, internships, and research engagements further enhance learning flexibility.

JSS GIFT strongly integrates industry exposure and research orientation, encouraging students to participate in internships, capstone projects, innovation activities, and interdisciplinary research. Additional features such as Add-on diplomas, Research Honors, and entrepreneurship opportunities provide avenues for specialization and career advancement.

The governance of academic processes is ensured through structured bodies such as the Board of Studies and the Academic Council, which oversee curriculum design, assessment standards, and policy implementation. Transparent mechanisms are in place for evaluation, re-assessment, and grievance redressal, ensuring academic integrity and quality assurance.

Overall, JSS GIFT is designed to produce future-ready professionals equipped with interdisciplinary knowledge, technological expertise, ethical values, and leadership skills, capable of addressing complex global challenges through innovation and intelligent systems.

Key Features — Summary

- Integrated 5-year M.Sc. program with extension to M.Sc. Honors
- Multiple exit options: Certificate, Diploma, B.Sc., B.Sc. Honors
- Multiple entry pathways for diploma and degree holders
- Strong focus on AI, Data Science, and Intelligent Systems
- Experiential learning model: hands-on learning, projects, and internships
- Serving as a monitor of learning and enabling effective learning through an institute technology platform
- Continuous assessment system: 70% formative and 30% summative
- Flexible credit-based system: CBCS with electives and Add-ons
- Mandatory holistic development credits: ethics and life skills
- Opportunities for research, innovation, and entrepreneurship
- Industry integration through internships and real-world projects
- Provision for semester drop, sabbatical, and credit transfer
- Transparent grading system: SGPA/CGPA and evaluation process
- Governance through Academic Council and Board of Studies
- Emphasis on interdisciplinary, technology-driven education

1. INTRODUCTION

This document contains the academic regulations, scheme of assessments, curriculum, detailed syllabi, course contents with recommended text/reference books, course outcomes, skills expected to be acquired, and the projects/assignments that are to be performed for each course for the conduct of the Integrated 5-year M.Sc. degree program (196 credits), with options to exit with a B.Sc. degree at the end of three years (120 credits), B.Sc.-Honors at the end of 4 years (160 credits), in addition to providing exit options with a Diploma at the end of the 2nd year (80 credits) and an exit at the end of the 1st year with a Certification (40 credits). This also provides for a special extension to M.Sc.-Honors by offering an additional year after M.Sc. At the end of the cumulative 6thyear following the integrated passage, a candidate will be awarded an M.Sc.-Honors degree (228 credits).

Initially, JSS GIFT offers the following two Integrated M.Sc. programs:

1. **Integrated M.Sc. in Artificial Intelligence, Data Science, and Intelligent Systems**
2. **Integrated M.Sc. in Intelligent Health Systems**

2. DEFINITIONS

For the regulations applicable to JSS GIFT in JSS AHER, the following definitions shall apply:

- **Degree**

  "Degree" shall refer to the conventional Integrated M.Sc. program. Additionally, and specifically, a degree may also refer to a B.Sc. degree, B.Sc.-Honors degree, M.Sc. degree, and M.Sc.-Honors degree.

- **Course**

  "Course" shall refer to such course(s) for which a student shall earn credits after due assessment as per the laid provisions. Projects, internships, industry engagement, and research engagement are also treated as courses with appropriate credit values.

- **Academic Activities**
  "Academic activities" shall refer to activities such as:

  - **Lecture-L** — Physical Lecture Session
  - **Transactions/Tutorial-T** — Participatory discussion/Self-Study/Desk Work/ Quiz/Seminar Presentation, etc., activities that help the student absorb and assimilate the delivered contents effectively

- **Practical/Practice Sessions-P** — Includes Hands-on Experience/Lab Experiments/Field Studies/Case Studies/Work Studies, etc., activities that enable the student to acquire the requisite skill Capstone projects, minor and major projects, and research work will predominantly be T/P-based activities.

- **Credit**

  "Credit" refers to a unit of measurement assigned to courses based on the weekly instructional hours. Typically, one credit corresponds to one hour of Lecture (L) or two hours of Transaction (T) / Practice (P) sessions per week.

- **Continuous Assessment**

  "Continuous Assessment" shall refer to the assessment of the student spread over the entire semester on the various constituent components of the prescribed course.

- **Formative Assessment**

  "Formative Assessment (FA)" is the component of continuous assessment as teaching-learning progresses through the semester. This assessment indicates the assessment ***FOR* learning**. This assessment may have sub-components like Group-wise Formative Assessment (GFA) and Individual-wise Formative Assessment (IFA). FA essentially measures the planning, executing, and validating capabilities acquired and developed by the student.

- **Summative Assessment**

  "Summative Assessment (SA)" will be a semester-end assessment that measures the summative comprehension of all that has been learnt throughout the semester. This assessment indicates the assessment ***OF* learning**. SA essentially measures learning capabilities and experiential internalization, which prompts him/her to instantaneously manage crises. Hence, it also indicates the measurement of a learner ***AS* a future performer**.

- **Semester**

  "Semester" shall refer to a period covering the two assessment periods, viz. Formative and Summative Assessment periods. A semester would generally be spread over 20-22 weeks.

- **Pre-Semester**

  "Pre-Semester" refers to a short 6–8-week program held before the first-year first semester. It primarily focuses on interfacing the candidate from the plus 2/12th standard level to a very rigorous professional program; it can be designed to contain essential bridge courses. The pre-semester will be a part of the first semester.

- **Course Drop**

"Course Drop" shall refer to a student having to undertake a 'Repeat (R)' of the course(s) due to not being able to complete the credit requirements of the course(s), under the conditions stipulated in the regulation.

- **Supplementary Summative Assessments**

  "Supplementary Summative Assessments" shall refer to summative assessment(s) conducted to allow the student to appear in the uncleared/Incomplete (I) Semester-End summative assessment component.

- **Blank Semester**

  "Blank Semester" shall refer to a semester in which a student either does not register for any course at the beginning of the semester OR chooses to DROP all courses OR is so compelled to DROP all courses, as the case may be.

- **Semester Drop**

  "Semester Drop" shall refer to availing a blank semester. However, if the drop is availed to pursue a creative extension activity, then it is defined as Semester Sabbatical.

- **Spill-over Semester**

  "Spill-over Semester" shall refer to the additional semester(s) beyond the completion of the prescribed normal semesters.

- **AAA Section**

  "AAA Section" shall refer to the Academics, Assessment, and Awards section of the Institute.

- **Attendance**

  "Attendance" refers to physical personal presence in an academic activity session.

- **Summer Semester**

  "Summer Semester" refers to a semester that is scheduled to be held during the intervening period of the Even and Odd Semesters, i.e., the summer vacation period.

- **Themes**

  "Themes" refer to the courses offered in a particular stream other than those offered by the regular departments, for example, NCC, Entrepreneurship, Fitness and Living, etc.

- **School**

"School" refers to a division of the institute dealing with two or more specific areas of discipline/study comprising departments related to exclusive emphasis on transdisciplinary research.

- **Department**

  "Department" refers to a division of an institute dealing with a specific area of discipline/study.

- **HoD**

  "HoD" refers to the Head of the respective Department where the student is enrolled for his/her stream of study.

- **Centre**

  "Centre" refers to a structured unit within the school/department established with the purpose of carrying out advanced research.

- **Grade Point**

  "Grade Point" refers to the quantification of the performance of a candidate in a particular course as defined herein.

- **SGPA**

  "SGPA" refers to the Semester Grade Point Average and is calculated as detailed in the regulations subsequently.

- **CGPA**

  "CGPA" refers to the Cumulative Grade Point Average and is calculated as detailed in the regulations subsequently.

- **Division**

  "Division" refers to the division awarded to the student as per the mechanism detailed in the regulations subsequently.

- **Internship**

  "Internship" refers to on-site practical training offered by reputed companies/institutions in India or abroad, to be undertaken with, or seeking, prior approval of the respective HoD.

- **Project**

  "Project" refers to a course executed by a candidate on a specific research problem/product or process development at JSS GIFT / any organization of repute, to be undertaken with, or seeking, prior approval of the respective HoD.

- **Credit Equivalence and Credit Transfer Committee**

  "Credit Equivalence and Credit Transfer Committee" refers to the committee designated to investigate credit equivalence and credit transfer.

- **Honourable Exit Option**

  "Honourable Exit Option" refers to the exit options available to students when they are unable to complete the prescribed Integrated 5-year M.Sc. degree program in ten successive years, i.e., double the duration, or would like to voluntarily exit.

3. ACADEMIC ADMINISTRATION

The academic programs of JSS GIFT are governed by the rules and regulations approved by the Academic Council from time to time. The various academic activities are conducted following a fixed time schedule duly approved by the Academic Council in line with the AICTE/UGC regulations. The academic activities of JSS GIFT are followed meticulously as specified in the academic calendar, as approved by the Academic Council. This academic calendar is shared with all the stakeholders well before the beginning of the respective academic year.

The curriculum and the course contents of all the programs are discussed by the respective Board of Studies (BoS), analysed, and recommended for implementation. The Academic Council, being the highest statutory body, chaired by the Vice Chancellor, meets four times a year and discusses, suggests, and approves all the important academic matters related to curriculum and course contents, including the recommendations of BoS.

4. PROGRAM DURATION

The Integrated M.Sc. programs listed in Section 1 are of 5 years' duration and are conducted over 10 semesters. The Integrated M.Sc. program requires the successful completion of 196 credits over 10 semesters. However, the maximum duration to complete the Integrated M.Sc. program will be 10 years, i.e., double the duration, with 10 more spill-over semesters.

This provision may facilitate a slow learner to opt for a slower pace of learning or if he/she is compelled. Candidates failing to complete the requirements within this period will be considered for an honourable exit, as applicable. An honourable exit can also be exercised by a candidate voluntarily.

4.1. Multiple Exit and Multiple Entry Options in Accordance with NEP 2020

Multiple Exit and Multiple Entry/Re-Entry options are created as recommended in the National Education Policy (NEP) 2020.

4.1.1. Multiple Exit — Honourable / Voluntary Exit Options

1. After successful completion of the first 40 credits corresponding to the first year, i.e., first 2 semesters, a candidate can opt for an Exit with **Certification**.
2. After successful completion of the first 80 credits corresponding to the first two years, i.e., the first 4 semesters, a candidate can opt for an Exit with **Diploma**.
3. After successful completion of the first 120 credits corresponding to the first three years, i.e., first 6 semesters, a candidate can opt for an Exit with a **B.Sc. degree**.
4. After successful completion of the first 160 credits corresponding to the first four years, i.e., first 8 semesters, a candidate can opt for an Exit with a **B.Sc.-Honors degree**.

   It may be noted that the B.Sc.-Honors degree is considered equivalent to B.S./B.Tech. /B.E. degree of 4 years' duration.
5. After successful completion of the stipulated 196 credits corresponding to the integrated passage of 5 years, a candidate will be awarded an **M.Sc. degree**.
6. The post-B.Sc. candidate who joins the M.Sc. program shall earn 76 credits to qualify for the award of the **M.Sc. degree**.
7. A special provision for extension by 2 more semesters in sequel to an integrated 5 years, or in sequel to 2 years of M.Sc. in the case of post-B.Sc. candidates' admission to M.Sc. creates an opportunity for the award of an **M.Sc.-Honors degree**, equivalent to M.S./M. Tech./M.E., by completing an additional 32 credits. For a graduate with a 4-year degree, the M.Sc.-Honors degree is of 2 years' duration and consists of 68 credits.

4.1.2. Multi-Entry Options

1. Normal entry is assumed to be to the Integrated M.Sc. program. The normal entry is for an eligible candidate with a qualification of +2/12th Standard, after 12 years of schooling.
2. A candidate with a Diploma qualification for which admission is based on SSLC/10 years of schooling can join the 2nd year of the integrated passage.

3. A candidate with an appropriate Diploma qualification for which +2 qualification happens to be the minimum prerequisite can join the 3rd year with the intention of receiving an Integrated M.Sc. degree.

4. Candidates with an appropriate B.Sc. degree qualification can join the 4th year with the intention of receiving an M.Sc. degree. This program (M.Sc. as post B.Sc.) is of 2 years' duration, comprising 4 semesters.

5. Candidates with a suitable 4-year degree program, such as B.Sc.-Honors/B.S./B.Tech. /B.E./B.Sc. Nursing/MBBS, can join the 5th year with the sole intention of earning an M.Sc. Honors degree, which is of 2 years' duration, comprising 4 semesters, for such candidates.

NOTE: A candidate who has opted for a voluntary exit may try for re-entry under the multi-entry option; however, the norm of maximum duration of 10 years in the case of an Integrated M.Sc. degree or 12 years in the case of an Integrated M.Sc.-Honors degree will be applicable.

The following block diagram depicts Sections 4.1.1. and 4.1.2.

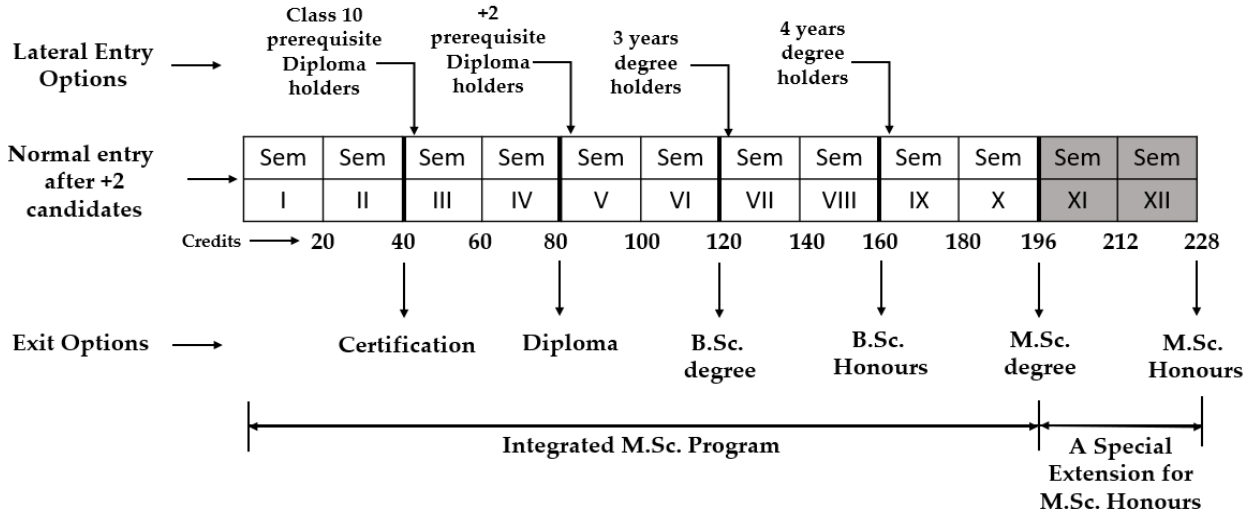


Figure 1: Integrated M.Sc. degree program.
With a special extension provisioning M.Sc.-Honors degree.

4.2. Eligibility Criteria for Admission at Multi-Entry Points

Mode of Entry	Streams of Study	
	AI, Data Science & Intelligent Systems	**Intelligent Health Systems**

Semester 1	**Normal Entry**	PUC/+2/12th Std with Science and Mathematics. JEE/CET/IISER examinees.	PUC/+2/12th Std with Science with or without Mathematics JEE/CET/IISER/NEET examinees.
Semester 2			
Semester 3	← Class X Prerequisite Diploma Holders	Diploma in Computer Science and related/allied subjects.	Diploma in Computer Science and related/allied subjects; Diploma in Biotechnology, Pharmacy, Nursing and related/allied subjects.
Semester 4			
Semester 5	← Class XII Prerequisite Diploma Holders	Diploma in Computer Science and related/allied subjects.	Diploma in Computer Science and related/allied subjects; Diploma in Biotechnology, Pharmacy, Nursing and related/Allied subjects.
Semester 6			
Semester 7	← 3-Year Degree Holders	B.Sc. in Computer Science and related/allied subjects.	B.Sc. in Biotechnology/Health Sciences/Pharmacy/Dental sciences and related/ allied subjects with knowledge in Computing; B.Sc. in Computer Science and related/allied subjects.
Semester 8			
Semester 9	← 4-Year Degree Holders	B.S./B.Sc. (Honors.)/B.Tech./B.E. in Computer Science/Information Technology/related/allied subjects.	B.S./B.Sc. (Honors.)/B.Tech./B.E. in Computer Science/Information Technology/related/allied subjects. B.Pharm./B.Sc. Nursing/M.B.B.S./related/ allied subjects with deeper knowledge in Computing and recent computer technologies/skills.
Semester 10			
Semester 11	← 5-Year Degree Holders	M.Sc./MCA in Computer science/Information Technology/related/allied subjects.	M.Sc./MCA in Computer science/Information Technology / related/allied subjects. M.Sc. in Biological Sciences/Health Sciences/Life Sciences/Pharmacy Sciences/related/allied subjects. The candidate should be highly knowledgeable in computing-related mathematics, computing, and recent computing technologies and skills.

Semester 12			

NOTE: Eligible candidates applying for lateral admission will be screened by the Equivalence & Credit Transfer Committee. The committee will determine the transferable credits and identify any bridge courses/make up courses additional credits that must be completed by the candidate before or during the program.

5. COURSES AND CREDITS

The term course is used in a broader sense to refer to so-called papers such as 'theory subject', 'laboratory', 'inter-departmental/field project'/capstone project, 'major project'/internship. A course can be of theoretical and/or practical nature, and a certain number of credits is allotted to it depending on the number of hours of instruction per week.

For a course offered in a semester, 1 hour of lecture (L) instruction carried out in a week is considered equivalent to 1 credit, whereas 2 hours of practice (P) sessions done in a week are considered equivalent to 1 credit, respectively. Depending on the course, 2 hours of tutorial (T) sessions are considered equivalent to 1 credit. A student earns these credits when he/she completes the course. Credits can also be obtained by successful completion of other recognized courses.

A student must additionally earn **10 non-qualifying but mandatory credits** in addition to the prescribed qualifying credits. This implies that for an Integrated M.Sc. degree, a candidate must complete **196 qualifying credits + 10 non-qualifying but mandatory credits (196+10)**.

Further, additively and optionally, if Add-on credits are earned in a specified manner, one can earn **Add-on Certification/Add-on Diploma/Add-on Graduate Diploma**.

Table 1: These provisions are summarized below.

Award Pathway	**Credit Requirement**
B.Sc. degree	120 + 10 credits
B.Sc. degree with Add-on Certification	120 + 10 + 12 credits
B.Sc.-Honors degree	160 + 10 credits
B.Sc.-Honors degree with Add-on Diploma/Add-on Minor/Add-on Major/Add-on Research Major/Add-on Certification	160 + 10 + 20 credits
Integrated M.Sc.	196 + 10 credits
Integrated M.Sc. degree with Add-on Graduate Diploma/Add-on Certification	196 + 10 + 28 credits
M.Sc. degree as a post-B.Sc. degree	76 credits
M.Sc. degree with Add-on Graduate Diploma	76 + 16 credits

Integrated M.Sc.-Honors degree	228 + 10 credits
Integrated M.Sc.-Honors degree with Add-on Graduate Diploma	228 + 10 + 28 credits
M.Sc.-Honors degree as a post-4-year degree program	68 credits
M.Sc.-Honors degree with Add-on Graduate Diploma	68 + 16 credits

Please see the appendix for enabling research-enthusiastic candidates / working professionals to pursue an M.Sc. Honors degree program by research.

5.1. Prerequisite Knowledge

Wherever prerequisite knowledge is specified, a student must register for the required courses covering the specified content before he/she registers for a higher-level course.

There are two types of prerequisites:

1. For some courses, successful completion of the prerequisite, i.e., earning credits, is mandatory before registration in the higher-level course.
2. For others, completion of formative assessments in the prerequisite course is sufficient, and students become eligible to register for the higher-level course if they do not have an 'R-grade' in the prerequisite course but may have an 'I-grade'.

5.2. Credit Patterns, Content Delivery, and Workload

5.2.1. Content Delivery

Content delivery of a course in the Integrated M.Sc. degree program shall be through any or all of the following methods:

i. Lecture — L

Refers to Lecture Session(s) through classroom contact sessions, where students will learn by listening. Denoted by **"L"**.

ii. Transactions — T

Refers to transaction(s) consisting of participatory discussion/self-study/desk work / brief presentations by students, along with such other novel methods that enable a student to efficiently and effectively absorb and assimilate the contents delivered in the lecture sessions. Denoted by **"T"**.

iii. Practice — P

Refers to Practice/Practical sessions, and it consists of Hands-on Experience/Laboratory Experiments/Field Projects/Case Studies/Minor/ Major Project, which equip the students to acquire the much-required skill component. Denoted by **"P"**.

iv. Self-learning — SL

Refers to the expected self-learning to be carried out by each student in a particular course. Denoted by **"SL"**.

Curriculum Philosophy of JSS GIFT

Table 2: The curriculum philosophy of JSS GIFT is expressed through the following six verbs.

Verb	Meaning
Learn	Build conceptual foundations in technology, computing, data, and society.
Build	Develop real systems, prototypes, dashboards, models, and digital products.
Experience	Engage in internships, hospital immersions, industry projects, and community contexts.
Discover	Participate in research, data analysis, problem discovery, and evidence generation.
Create	Develop innovations, startups, patents, publications, and deployment-ready solutions.
Lead	Develop communication, ethics, teamwork, leadership, and global perspective.

Common Graduate Attributes

The common graduate attributes are indicated as follows:

- Computational thinking and data intelligence
- AI literacy and intelligent systems design
- Health and human systems understanding
- Ethical and responsible technology practice
- Research capability and evidence-based reasoning
- Innovation, entrepreneurship, and product thinking
- Communication, leadership, and teamwork
- Global awareness and societal responsibility
- Lifelong learning and adaptability

5.2.2. Credit Pattern

A course is a composition of either a subset combination or all four components of teaching and learning.

Table3: Crediit composition for different componets of learing

Component	Description	Credit Equivalence
L	**L**ecture session	1 hr/week amounts to 1 credit

T	**T**ransaction session	2 hrs/week amounts to 1 credit
P	**P**ractice session	2 hrs/week amounts to 1 credit
SL	**S**elf-**L**earning	Expected independent learning

Any course shall contain T/P credits. A course with only L credits is not permitted. Courses with only T/P credits, such as internship/capstone projects and projects, enhance implementation skill sets.

Conventionally, at the bachelor's degree level, 1 credit hour implies 1 hour of interaction with the teacher, i.e., supervised learning, and one hour of self-work/self-learning without the teacher or with the teacher as an observer at the remote end, i.e., unsupervised/quasi-supervised learning. Therefore, 1 credit hour per week implies a learning investment of 2 hours per week.

At the master's degree level, one credit hour per week shall imply a learning investment of 2.5 to 3 hours per week.

Under the above notion, at the bachelor's degree level, one semester at most can have courses amounting to 24 credits, inclusive of Repeat credits and Add-on credits, requiring 48 hours of learning investment per week. At the master's degree level, one semester at most can have courses amounting to 20 credits, inclusive of Repeat/Add-on credits.

Since the objective is to realize experiential learning, as brought out in NEP 2020, the focus should be more towards T/P and SL sessions in a course, and this necessarily warrants keeping L sessions to a minimum.

Further, tech-savvy learning/AI support for learning should become inclusive to make T/P sessions specifically very effective for realizing experiential learning and for realizing continuous monitoring of learning.

To enhance the scope of experiential learning, participation in Hackathons/Ideathons/Workshops/Conferences/Internships may also be included as extended components for T/P sessions.

Example

A course of four credits may typically be made up of:

- L = 2 credits
- T/P = 2 credits

The credit pattern for this type of course in L:T:P structure is expressed as **2:1:1**.

In terms of work hours, a 4-credit course requires 8 hours of learning investment, which is expressed as **L hrs – T hrs – P hrs – SL hrs = 2 – 2 – 2 – 2**

Table 4: The credit pattern.

Component	Credits	Sessions	Hours/Week
L	2 credits	2 sessions	2 hrs/week
T	1 credit	1 session	2 hrs/week
P	1 credit	1 session	2 hrs/week
SL	Self-learning	—	2 hrs/week

Total credits: 4 **Total hours:** 8 hrs/week

NOTE: When a student registers for a course of 4 credits, he/she will earn 4 credits in toto, and he/she cannot claim partial completion of L credits/T credits/P credits.

5.2.3. Workload

As illustrated above for a 4-credit course of 2:1:1 type, the learning investment for a student is 8 hrs/week.

The workload of the department is shown below:

Suppose a class has 60 students. This class will have three batches of 20 students each for T/P sessions, and every batch will have 5 groups @ 4 students per group.

Table 5: The workload of the department.

Workload Component	Calculation	Workload
Workload for L	2 credits × 1 hr	02 hrs/week
Workload for T/P	2 credits × 2 hrs × 3 batches	12 hrs/week

This totals to **14 hrs of workload per course** of 2:1:1 type per week.

Typically, in one semester offering 24 credits, i.e., 6 courses of 4 credits each of 2:1:1 type, the total workload on the department per week will become:

12 hrs/week/course × 6 courses/semester = 72 hrs/week

Time Calculations for GFA

Time calculations for GFA (Section 6), are shown below. These time calculations may be revisited after going through Section 6.

Presentation by a student requires 4 minutes, since the course has 2 sessions of T/P per week.

Table 6: Time calculation.

Description	Calculation	Time
Time required per group	4 minutes/student × 4 students	16 minutes

Time required per batch	16 minutes/group × 5 groups	80 minutes

Time required for discussion/viva per student is 5 minutes, since the course has 2 sessions of T/P per week.

Table 7: Time calculation.

Description	Calculation	Time
Time required per group	05 minutes/student × 4 students	20 minutes
Time required per batch	20 minutes/group × 5 groups	100 minutes

Total time required = 80 + 100 = 180 minutes

A teacher may make use of two sessions every 4th week for the respective GFA through presentation and discussion/viva.

For such a course that consists of only one T/P session, the time requirement would be:

- 40 minutes per presentation, @ 2 minutes per student
- 50 minutes discussion/viva, @ 2.5 minutes per student

Total = 90 minutes

In this case, a teacher may make use of one session of every 4th week for the respective GFA.

5.3. Credit Requirements for the Award of Degrees

At the bachelor's degree level, a student must earn a mandatory 10 credits in courses such as Constitution of India, Environmental Studies, Universal Human Values, and Life Skills. These 10 credits are Binary Graded Credits requiring only successful completion of these credits. These 10 mandatory credits are in addition to qualifying credits for the award of a degree.

Further, a candidate may also optionally earn an Add-on Diploma while not exceeding 24 credits per semester, inclusive of such Add-on credits.

1. A candidate opting to exit with a B.Sc. degree may earn an additional 12 credits, cumulatively totalling **120+10+12 credits**, to become eligible for the award of a B.Sc. degree with an Add-on Certification.
2. A candidate opting to exit with a B.Sc. Honors degree may earn an additional 20 credits, cumulatively totalling **160+10+20 credits**, to become eligible for the award of a B.Sc. Honors degree with an Add-on Diploma.

- The Add-on Diploma will be an Add-on Minor Diploma in case a candidate earns 20 credits from an allied discipline.
- The Add-on Diploma will be an Add-on Major Diploma in case the candidate earns 20 credits vertically in the parent discipline.
- Assorted earnings of 20 credits will lead to the award of an Add-on Diploma.
- If the candidate earns less than 20 credits, he/she will receive an Add-on Certification.

3. A candidate who targets to receive an Integrated M.Sc. degree may earn an additional 8 credits during the 5th year to get an Add-on Graduate Diploma in place of an Add-on Diploma.

4. A B.Sc. candidate who joins for the M.Sc. degree may earn an additional 16 credits to get an Add-on Graduate Diploma.

Note 1: Please also see the beginning of Section 5 for a detailed picture of combinations of awards due to multiple entry and multiple exit options.

Note 2: The courses registered for Add-on Credits should not be chosen as electives/ as core courses, for earning qualifying credits, and/or vice versa.

5.4. Composition of an Academic Year

An academic year is composed of:

- Odd semester : 20-22 weeks
- Even semester : 20-22 weeks
- Summer-semester: 6-8 weeks

The regular semester that begins in August/September is known as the odd/first semester, and the one that begins in January/February is known as the even/second semester.

The instructional days for a regular semester shall be a minimum of 90 working days, exclusive of days earmarked for summative assessment. However, the first-year academic calendar varies slightly to accommodate the pre-semester.

YEAR OF 12 MONTHS											
1	2	3	4	5	6	7	8	9	10	11	12
Aug./ Sept.	Sept./ Oct.	Oct./ Nov.	Nov./ Dec./	Dec./ Jan.	Jan./ Feb./	Feb./ Mar.	Mar./ Apr.	Apr./ May	May/ June	June/ July	July/ Aug.
ODD SEM / FIRST SEM					EVEN / SECOND SEM					SUMMER SEMESTER	

Figure 2: Distribution of semesters during an academic year.

5.4.1. Before the commencement of the semester, a candidate has to pay the stipulated tuition fee and apply detailing the courses he/she intends to register for, valid for that respective Odd/Even semester. The maximum number of credits per semester will be 24 credits, inclusive of Add-on credits. The intended semester-wise coverage will be as presented in the curriculum.

5.4.2. The summer semester is a short-duration semester program that will generally be conducted during the semester break between the even and odd semesters. Students having **'R'** (Repeat grade) courses may register for the coursework during this semester to get a chance for successfully completing the **'R'** courses. In general, supplementary assessments are conducted in the later part of the summer semester. However, the courses offered in the summer semester and the number of courses a student can register for are subject to academic and administrative convenience. A student may register for up to a maximum of 16 credits in a summer semester.

5.4.3. As an exception to the routine practice of registering for **'R'** courses in the summer semester, a student can register for a course offered by a visiting expert during the summer vacation, which may be equivalent to an open elective, a department elective, or an Add-on course. The candidates can register for such courses within the scope of 16 credits. A candidate may also avail the summer semester for summer internship opportunities, which may be considered as Add-on credits.

5.4.4. Summer internship credits will also be appended to the credits of the Department Elective/Honors/Minor/Add-on Certification, provided the theme of the internship is in accordance with the specialization.

5.5. Semester-wise Provisions

A student may register for a maximum of 24 credits per semester as prescribed, or otherwise, he/she may include the Repeat courses **(R)** in the event of not having successfully completed a course or courses in an earlier semester. However, a student may also opt to proceed at a slower pace to earn credits less than the prescribed maximum of 24, including even dropping a semester for special reasons.

5.5.1. During the first five years from the date of admission to the Integrated M.Sc., a candidate must pay the semester/annual fees as prescribed, irrespective of the lesser number of credits/semesters that he/she would register for or even if he/she opts to drop a semester.

5.5.2. If a candidate gets into a spill-over semester beyond five years up to a maximum of ten years, he/she must pay a semester fee proportional to the credits that he/she registered for in that spill-over semester, as prescribed from time to time.

5.5.3. A candidate must pay an additional fee proportional to the number of credits for registering in a summer semester, as prescribed from time to time.

5.6. Pre-Semester Program

The Pre-Semester Program is an integral addition to the first-semester academic structure, complementing the existing Odd, Even, and Summer-semesters. Positioned between the orientation program and the first regular semester, it is designed to equip newly admitted students with essential academic skills, ensuring a smooth transition into professional education in future technologies.

By addressing foundational learning gaps and strengthening core competencies, this preparatory phase enhances students' readiness for the rigorous curriculum ahead. Recognizing that students come from diverse educational backgrounds and considering the specific requirements of future technology education, this program bridges the gap by emphasizing the application of mathematical concepts in problem-solving and fostering effective communication skills.

It also aims to design minimal bridge courses that are essential to start the journey for the Integrated M.Sc. program. The pre-semester may be designed to cover 6-8 credits and will be treated as part of the 1st semester. Hence, the 1st semester after the pre-semester will accommodate 24 minus 6/8 credits of pre-semester, i.e., 8 + 16 credits.

The teaching-learning process in pre-semester courses is activity-based, prioritizing conceptual understanding and skill development. To align with this philosophy, the program follows an assessment structure with 100% weightage for formative assessment and no summative assessment. This ensures that learning is continuous, interactive, and application-driven, helping students internalize concepts effectively.

A dedicated academic calendar has been developed to seamlessly integrate this program into the academic structure, reinforcing continuous learning practices and preparing students for the rigours of technology education.

YEAR OF 12 MONTHS – Extended Calender (1 year)											
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Aug	Sept	Oct	Oct/ Nov	Dec	Jan	Feb	Feb/ Mar	Apr	May/ June	June	July
OP	Pre-sem		Formative Assessment			S	Formative Assessment			S	V
ODD SEM / FIRST SEM			ODD SEM / FIRST SEM				EVEN / SECOND SEM				
OP = Orientation Program S = Summative Assessment (10 days); V = Vacation / Summer Semester (30 Days)											

Figure 3: The academic calendar with Pre-Semester.

5.7. Semester-wise Distribution of Credits

Semester-wise distribution of the maximum possible credits that can be registered in every semester is shown in the table below.

Table 8: Semester-wise Distribution of Credits.

	Credits				Cumulative Credits				
Semester	**Qualifying**	**Binary Graded**	**Add-on**	**Total**	**Qualifying**	**Binary Graded**	**Add-on**	**Total**	**Exit Pathways**
I Sem Pre-Sem	**08**	-	-	08	**08**	-	-	08	
I Sem	**12**	04	-	16	**20**	04	-	24	
II Sem	**20**	04	-	24	**40**	08	-	48	Certification
III Sem	**20**	04	-	24	**60**	12	-	72	
IV Sem	**20**	-	04	24	**80**	-	04	96	Diploma
V Sem	**20**	-	04	24	**100**	-	08	120	
VI Sem	**20**	-	04	24	**120**	-	12	144	B.Sc.
VII Sem	**20**	-	04	24	**140**	-	16	168	
VIII Sem	**20**	-	04	24	**160**	-	20	192	B.Sc.-Honors
IX Sem	**20**	-	04	24	**180**	-	24	216	
X Sem	**16**	-	04	20	**196**	-	28	236	M.Sc.
XI Sem	**16**	-	04	20	**212**	-	32	256	
XII Sem	**16**	-	04	20	**228**	-	36	276	M.Sc.-Honors

6. ORGANIZATION OF THE COURSE CONTENT AND ASSESSMENT

Every course will generally be composed of 4 units. Each Unit is expected to be covered over 3 to 4 weeks, approximately over one month, and the 4 Units over 15-16 weeks in a semester, approximately over 4 months.

By the end of each Unit, a candidate must be able to translate his/her L-based knowledge into P-based skill as prescribed in the curriculum. Continuous Formative Assessment

(FA) shall be in place for each Unit. Finally, a semester-end Summative Assessment (SA) for the course, composed of all 4 Units, will conclude the assessment.

Semester-end SA will be held during the first half of the 5th month, i.e., the 17th/18th-19th week of the semester. Formative Assessment (FA) will be for a maximum of 70%, and Summative Assessment will be for a maximum of 30%.

6.1. Formative Assessment (FA) *FOR* a Course

Formative Assessment **(FA)** will be carried out in continuous mode, unit-wise. For **FA**, a class will be decomposed into batches, and each batch size should not exceed 20 students. Further, each batch will have 5 groups, and each group contains not more than 4 students.

Every group will be a random composition of 4 students, and this composition will remain the same for all courses for one entire year of 2 semesters, i.e., odd and even semesters.

Each group will undergo **Group-wise FA (GFA),** and every student will also undergo **Individual-wise FA (IFA)**, as described below.

While the teaching-learning of unit-wise content is in progress, the teacher-in-charge prescribes the assignments for T/P (Transaction/Practice) sessions and for SL (Self-learning). The frequency of such assignments will normally be one per week or one per 2 weeks. Each such assignment set may contain two or more than two problems/cases to be solved, warranting design thinking.

A group will collectively work on the assignments and prepare one or two reports to be submitted once in every 2nd week and/or in the 4th week of every unit.

The unit-wise GFA will be evaluated for a maximum of 25 marks.

Table 9: Scheme for GFA.

Component	Description	Maximum Marks
1	Marks for every student in the group, provided all students in the group have participated in learning, discussing, and solving the assignments, based on overall group performance, group report(s), and the PPT material prepared	8
2	Presentation by every student in the group at 4 minutes per student, in case a course has two sessions of T/P per week, or at 2 minutes per student in case the course has one session of T/P	8
3	Discussion/viva: the group(as a whole) should appear for discussion/viva voce. However, each student will be assessed by the teacher, who spends with every student 5 minutes / 2.5 minutes as detailed above, for the discussion/viva voce	9
	Total	**25**

Table 10: Summary of GFA.

GFA Component	Coverage	Marks
GFA-1	Generally, covers Unit 1	25
GFA-2	Generally, covers Unit 2	25

GFA-3	Generally, covers Unit 3	25
GFA-4	Generally, covers Unit 4	25
	Total GFA per course	**100**

Two Individual Formative Assessments (IFA) will be carried out, the first one during the 7th-8th week of the semester and the second one during the 14th-15th week of the semester.

About four advanced topics, based on Unit 1 and 2 for IFA-1 and Unit 3 and 4 for IFA-2, for an IFA test will be proposed by the faculty and will be notified to the class, about 3 weeks in advance to the day of conducting the IFA test. Only one very specific question from any one of the topics will be assigned on the day of the test. One more question to review Units 1 and 2 in IFA-1 and to review Units 3 and 4 in IFA-2 will be set. Thus, each IFA will contain 2 questions. Each question should contain sub-questions as per Level 1 to Level 4/5 of Bloom's Taxonomy, covering different levels in a progressive sequence of sub-questions. This test will be of 2 hours' duration.

Note: The IFA tests for 2-3 courses per day will be conducted, and IFA tests for all courses of a semester will be held in three consecutive days. The IFA-Test 1 may be scheduled on Monday, Tuesday, and Wednesday, and IFA-Test 2 may be scheduled on Thursday, Friday, and Saturday, or vice versa.

Each IFA is evaluated for a maximum of 40 marks, i.e., 20+20 marks, and is reduced to 20 marks.

Table 11: IFA component.

IFA Component	**Marks**
IFA / Unit 1 & 2	20
IFA / Unit 3 & 4	20
Total IFA	**40**

Total FA = GFA + IFA = 100 + 40 = 140 marks

The marks scored by a student for a maximum of 140 will be mapped to a score for a maximum of 70, adopting a relative mapping procedure.

6.2. Summative Assessment (SA) *OF* a Course

Summative Assessment (SA) will be conducted after the completion of 16 weeks of teaching-learning activities. It may normally be scheduled during the 17th/18th -19th week of September. A semester of 20-22 weeks includes 16 weeks for teaching and learning and FA, 2 weeks for SA, and 2 weeks of a brief inter-semester break between odd and even semesters.

SA will be conducted for a maximum duration of 2.5 hours. Only three questions, without providing any choices, will be set. Every question will be set at a higher level,

compelling the students to explore beyond whatever is covered in the L-T-P sessions.

The questions should be holistic, inter-unit-wise, and should not be unit-wise. Each question can be composed of 3-4 sub-questions starting from Level 1/2 and progressively moving up to Level 4/5 of Bloom's Taxonomy. Every question will be set for a maximum of 20 marks, and the total marks for SA will be for a maximum of 60 marks.

Note: If a teacher opts that a semester-end practical assessment should also be conducted, then one SA question of 20 marks will correspond to the semester-end practical assessment. Such a practical assessment for the entire class will be conducted on the same day as the SA is held. In such a case, SA for 40 marks will be held for 2 hours, and the corresponding practical assessment for a maximum of 20 marks will be conducted in a session of 2 hours. Thus, SA will be collectively for a maximum of 60 marks.

Marks scored by a student for a maximum of 60 will be mapped to a score for a maximum of 30. The relative mapping procedure will be adopted.

Total marks per course = FA score + SA score
= maximum of 70 + maximum of 30
= maximum of 100

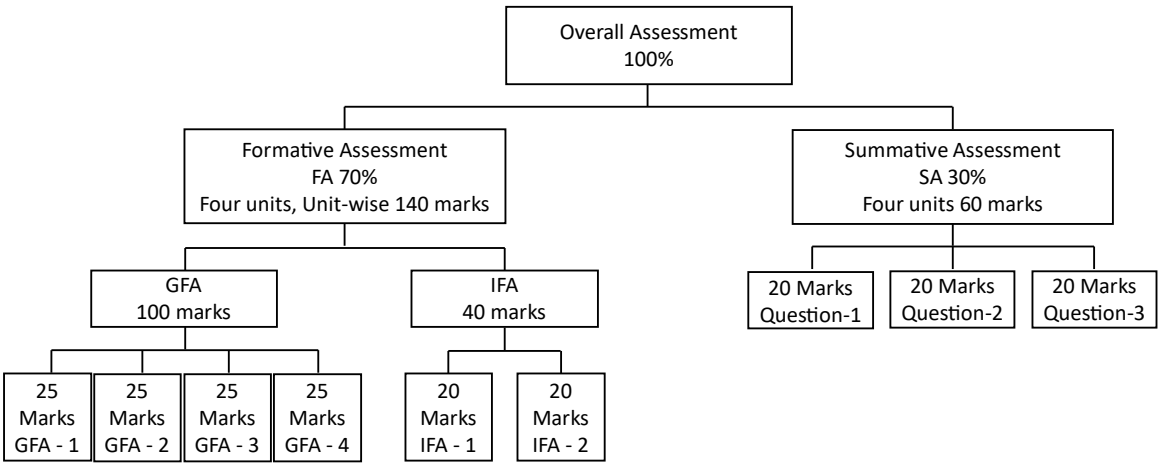


Figure 4: Continuous assessment pattern.

6.3. Formative Assessment for Exclusive T/P Courses

For exclusive T/P courses such as projects/capstone/internship, which could be group-wise or individual-wise, the assessment components are FA-1, FA-2, FA-3, and FA-4 in place of GFAs and IFAs.

Table 12: Formative Assessment component.

Assessment Component	Week	Maximum Marks

FA-1	4th week	30
FA-2	8th week	30
FA-3	12th week	40
FA-4	16th week	40
Maximum total FA		**140**
Maximum total SA		**60**

The internal split for 30/40 marks in every FA can be decided by the teacher(s)-in charge in consultation with the HoD, depending upon the nature of the course. The SA can also be carried out for a maximum of 60 marks.

Whether an external examiner should be invited or not to conduct SA should also be decided in consultation with the HoD., depending upon the nature of the course. For instance, having an external examiner is appropriate in the case of SA for project work.

6.4. Summary Layout of Assessment Durations

Table 13: Summary Layout

Assessment	Component	Description	Duration
FA	GFA	Duration for presentation and discussion/viva voce per candidate for a course having two T/P sessions per week	4 mins + 5 mins respectively
FA	GFA	Duration for presentation and discussion/viva voce per candidate for a course having one T/P session per week	2 mins + 2.5 mins respectively
FA	IFA	Duration for solving 2 questions	2 hours
SA	Written Assessment	Duration for attending 3 questions	2.5 hours
SA	Written + Practical Assessment	Duration for both writing assessment and practical assessment, i.e., 2 questions + 1 practical assessment	2 hrs + 2 hrs

6.5. Timeline for Teaching-Learning-Assessment Activities in a Semester

Table 14: Timeline for Teaching-Learning-Assessment Activities

Week	Activity
Week 1	GFA-1
Week 2	GFA-1
Week 3	GFA-1
Week 4	GFA-1

Week 5	GFA-2
Week 6	GFA-2
Week 7	GFA-2 IFA-1
Week 8	GFA-2
Week 9	GFA-3
Week 10	GFA-3
Week 11	GFA-3
Week 12	GFA-3
Week 13	GFA-4
Week 14	GFA-4 IFA-2
Week 15	GFA-4 Attendance calculation to be finalised
Week 16	GFA-4
Week 17	R to be notified
Week 18	Summative Assessments
Week 19	Summative Assessments
Week 20	A brief break between the semesters, specifically between odd and even semesters
Week 21	A brief break between the semesters, specifically between odd and even semesters

7. ATTENDANCE

It is mandatory for the student to attend the coursework in each semester as per the academic schedule of that semester. JSS GIFT expects 100% attendance. However, the attendance in each course shall not be less than 75% of the aggregate of all L, T, and P sessions conducted in that course.

1. The attendance calculations will be periodically reviewed at the end of every 4 weeks. The details of attendance status will be shared with the parents/guardians. The final status of attendance will be reported at the end of the 15th week, granting the advantage of the attendance for the 16th week for the purpose of attendance shortage calculations.

2. The shortage of attendance may be condoned up to 10% on the grounds of ill-health, social obligations, participation/representation in sports/cultural events, placement activities, etc.

3. Documentary evidence, like medical reports and certificates issued by concerned bodies, is to be produced on time as support for the attendance shortage due to ill-health. These cases are subject to the scrutiny of a committee constituted for this purpose by the Head, JSS GIFT. The decision of the committee shall be final.

4. Prior approval must be taken from the HoDs for other types of leaves.

5. The courses where the student's shortage of attendance was not condoned shall be considered as 'Repeat' category courses and will be under **'R'** grade in the student's semester transcript. The student should re-register for these courses during the summer semester or whenever the course is offered next during regular semesters. These re-registrations are subject to the regulations at the time of re-registration. In the case of core courses, the same core must be re-registered. However, in the case of an elective, a candidate may exercise the choice of choosing a different elective in place of the **'R'** graded elective.

The students who are put into **'R'** grade will not be allowed to take up the summative assessment in that semester. In case, due to lack and/or delay in information, he/she appears for the summative assessment in that course, the office of the HoD is empowered to cancel the attended assessments. The scores obtained either in formative or summative assessment will not be considered for grading.

8. NATIONAL CREDIT FRAMEWORK / CHOICE-BASED CREDIT SYSTEM

Each stream of Integrated M.Sc. programs comprises a set of courses/basic sciences/humanities/management/basic technology/professional courses, electives/employability, entrepreneurship, and life skill courses. JSS GIFT offers flexibility for students to choose courses of their choice and to obtain credits.

Different types of courses offered are listed below:

8.1. Common Core and Stream-specific Professional Core

8.2. Basic Sciences and Humanities

8.3. Basic Technology

8.4. Electives

- Stream-level electives
- Industry-interface electives
- Common electives across the streams
- Open electives
- Add-on minor electives
- Add-on major electives

8.5. Projects

- Capstone projects
- Inter/cross-departmental projects
- Societal-centric projects
- Field projects
- Research projects
- Theme-based internships

8.6. Binary Graded Courses

Some Binary Graded courses may be mandatory and some of them may be choice-based. They are 1-credit courses of the type **0:1:0** or **0:0:1**.

They include courses such as:

- Orientation Session / Induction Program
- Constitution of India
- Self-Empowerment
- Gender Sensitization
- Physical Fitness
- Sports and Games
- Personal Hygiene
- Life Skills
- Indian Culture and Heritage
- Gerontology
- Participation in NCC / NSS / Student Affairs / Social Activities
- Stories of Indian Independence
- Fix It Yourself
- Universal Human Values
- Indian Knowledge System
- Sustainability
- Environmental Studies

The list is not comprehensive. The institute may add, revise, or delete the titles from time to time.

The Binary Graded courses and any other 1-credit course will have only Formative Assessment. Particularly, Binary courses will be non-qualifying credit courses and must be successfully completed. The courses will be graded as:

- Successfully Completed
- To be Repeated

8.7. ** MOOCs-based Electives

8.8. ** Credit Transferable Courses

8.9. ** Self-study Courses / Research-intensive Assignments / Theme-based internships

These may be undertaken during semester sabbatical and/or during the summer semester.

8.10. ** Creative Work in Lieu of Courses

****** Equivalence of credits/transfer of credits will be processed and recommended by the Credit Equivalence and Credit Transfer Committee.

The equivalence of credits/qualifying credits considered for in-between entry/re-entry into the integrated passage will also be undertaken by the same committee.

9. SEMESTER-END ASSESSMENT ACTIVITIES

9.1. Setting of semester-end summative assessment question papers will be coordinated by the lead instructor assigned for a particular course. Two sets of question papers will be submitted by the 12th week of the semester.

9.2. There shall be a 'Summative Assessment Question Paper Scrutiny Committee' constituted with external experts. Experts are empowered to modify/rephrase the questions to maintain a high standard of the semester-end assessment. The review should be completed by the 14th week of the semester. The review process will be coordinated by a committee consisting of the HoD, HoD's nominee, internal experts, and external experts.

9.3. The question-wise marks scored in the summative assessment out of a total of 60 will be made available online within two weeks from the last date of examination and will be kept active for 24 hours. At the latest, by the end of 48 hours from the instant of notification, any candidate can submit an appeal online, providing a question-wise claim.

9.4. Claims for re-assessment on P-based courses are not allowed.

9.5. The appeals will be attended to within the next three working days. Fees for appeal, as decided from time to time, have to be remitted online along with the appeal.

9.6. Results and grades will be computed as explained in the subsequent section.

9.7. Finally, results and grades shall be announced within four weeks of completion of the last examination of the summative assessment, i.e., within two weeks from the last date of appeal. Grades are published on the University website and informed to the parents and students through SMS.

9.8. Provisional Grade Cards will be issued within two weeks after the announcement of grades. The grade card will contain three parts:

- Part 1: Details of completed courses
- Part 2: Details of 'I' grade courses
- Part 3: Details of 'R' grade courses

9.9. A comprehensive/consolidated transcript/grade document will be issued at the time of successful exit/voluntary exit. This document contains the details of courses, credit pattern of the courses, and grades earned, put in chronological sequence based on the date of successful completion of the courses.

The comprehensive/consolidated transcript will also contain the details of all Add-on courses/Binary Graded courses, including the details of additional internships and projects undertaken, as a supplement.

10. RELATIVE MAPPING OF FA, SA AND GRADING

Marks scored in the FA for a maximum of 140 shall be scaled to 70 marks before being combined with marks scored in SA, which shall also be scaled independently to 30 marks.

The mapping/scaling procedure is as follows:

Step 1

i. Decide the cut-off point for **outliers**. The cut-off refers to **LUB**, i.e., Least Upper Bound. This represents the maximum marks below the outliers. This is indicated as **MAX**.

ii. Decide the cut-off point for **underliers**. The cut-off point refers to **GLB**, i.e., Greatest Lower Bound. All candidates with scores less than GLB are probably the candidates who would be put into R/I — Repeat/Incomplete. This is indicated as **MIN**.

Step 2

The HoD, the course coordinator, and the teacher concerned will decide the mapping range **(a, b)** for all scores greater than or equal to MIN and less than or equal to MAX.

Where:

- **a** is a lower threshold, suitably above 50% in the case of FA and suitably above 40% in the case of SA; and
- **b** is the upper threshold, suitably above MAX, ensuring the exclusion of outliers.

Step 3

Mapping is performed employing the following formula:

Mapped score = a + (b - a) × [(marks - MIN) / (MAX - MIN)]

Here, **marks** are the actual marks scored out of 140 in the case of FA and out of 60 in the case of SA.

Mapped scores are computed accurately to the first decimal place.

Note: The mapping can be bi-directional, that is, marks awarded by following a tough evaluation process may be scaled up, and marks awarded by an overly liberal

evaluation process may suffer scaling down. Therefore, teachers are advised to stick to a fair evaluation process.

Note: In a class, there may not be any outliers and/or any underliers. In such cases, the class maximum is MAX, and the class minimum is MIN accordingly.

11. QUALIFYING CRITERIA

1. A candidate should have complied with the attendance requirement as explained in Section 7. Those who do not meet attendance requirements will be put into **R — Repeat grade**.
2. In sequel to the attendance requirement, a candidate should score a minimum of 50% in FA subsequent to the mapping procedure, failing which he/she will be put into **R — Repeat grade**.
3. A candidate who has cleared (1) and (2) above will be allowed to take up SA. A candidate should score a minimum of 40% in SA subsequent to the mapping procedure, failing which he/she will be put into an **I — Incomplete grade**.
4. The total score (TS) for all successful candidates will be for a maximum of 100.

   TS = Mapped FA score + Mapped SA score
5. Based on TS, successful candidates are graded as shown in the table below.

Table 15: Scheme of Grading.

Total Score (TS)	Grade Point (GP)	Letter Grade	Description
TS ≥ 95.00	10.0	O	Outstanding
90.0 ≤ TS < 95	9.5	S	Super
85.0 ≤ TS < 90	9.0	A++	Very very good
80.0 ≤ TS < 85	8.5	A+	Very good
75.0 ≤ TS < 80	8.0	A	Good
70.0 ≤ TS < 75	7.5	B++	Very very fair
65.0 ≤ TS < 70	7.0	B+	Very fair
60.0 ≤ TS < 65	6.5	B	Fair
55.0 ≤ TS < 60	6.0	C+	Satisfactorily marginal
50.0 ≤ TS < 55	5.5	C	Marginal
47.0 ≤ TS < 50, subject to FA ≥ 50% (35 marks) and SA ≥ 40% (12 marks)	5.0	D	Poorly marginal

11.1. Transitional R & I Grades

Table 16: R & I grade condition.

Condition	Grade
Attendance requirement not met	R — Repeat
FA < 50%, i.e., less than 35 marks	R — Repeat
SA < 40%, i.e., less than 12 marks	I — Incomplete

If a candidate is put into R, then he/she has to register for the same course if it is a core course, when it is offered next time, following the regulation that exists then, or in the summer semester if the provision is made. If the course is an elective course, then he/she may take an alternate elective.

If a candidate is put into I, then he/she has to appear for SA only whenever it is conducted.

11.2. Option for Course Withdrawal

A candidate may be allowed to withdraw a low-grade course/I-grade course within 15 days of the announcement of the result. However, the candidate has to clearly indicate the option for either R Grade or I Grade.

12. SUPPLEMENTARY EXAMINATIONS

12.1. The supplementary examinations shall be conducted once in the summer semester. Notifications will be released by the Examination Section informing the students about registration procedures, details of the fee, and timetables. Apart from these examinations, the students who have courses with 'I'-grade can also write the supplementary examinations along with regular semester-end examinations.

12.2. Whenever a candidate clears courses with 'I' grade in a supplementary examination that is conducted during a regular semester, the threshold values for computing his/her grade will be obtained from the same batch in which he/she had completed his/her formative assessment.

12.3. Whenever a candidate clears courses with 'R'/'I' grade in a summer semester, the threshold value for computing his/her grade will be carried forward from the preceding Odd/Even semester for the respective courses.

12.4. Whenever a candidate clears courses with an 'R' grade in a regular semester along with his/her junior batch, then for this candidate, the threshold values will correspond to his/her junior batch for computing the grade.

12.5. The results of the summative assessment of the Project/Internship will be announced only if the candidate successfully earns all the credits in courses registered during the program. If the candidate has 'R'/'I' graded courses, the results will be kept under 'Announced Later (L)' status and will be announced only after the candidate clears these courses.

13. GRADE POINT AVERAGE

The academic performance of a student in every semester is indicated by the Semester Grade Point Average (SGPA) and finally by the Cumulative Grade Point Average (CGPA).

13.1. SGPA

The Semester Grade Point Average (SGPA) shall be computed using the formula given below:

$$SGPA = \frac{\sum_{i=1}^{n} C_i P_i}{\sum_{i=1}^{n} C_i}$$

Where:

n = Number of courses a student successfully completed in the semester under consideration

$\mathbf{P_i}$ = Grade points secured for the i^{th} course registered in the semester under consideration

$\mathbf{C_i}$ = Number of credits assigned to the i^{th} course registered in the semester under consideration

SGPA for the degree component and Add-on component will be separately computed.

13.2. CGPA

The Cumulative Grade Point Average (CGPA) shall be computed after successful completion of the program. The CGPA shall be expressed to reflect the specific degree component and Add-on component separately.

Accordingly, the computation will be as below:

$$\text{CGPA} = \frac{\sum_{j=1}^{m} C_j P_j}{\sum_{j=1}^{m} C_j}$$

Where:

m = Total number of courses prescribed for the completion of the program, i.e., qualifying credits for Degree/Add-on credits for accounted separately.

$\mathbf{P_j}$ = Grade points secured for the j^{th} course

$\mathbf{C_j}$ = Number of credits assigned to the j^{th} course

Note: SGPA and CGPA are expressed accurate to decimal places.

13.3. Percentage Equivalence

Percentage equivalence = GP × 10, SGPA × 10, and CGPA × 10, respectively.

14. AWARD OF CLASS

The students who have become eligible for the award of a degree shall be classified based on their CGPA secured, as per Table 6 given below.

Table 17: Classification Based on CGPA

Sl. No.	CGPA	Class / Division
1	8.0 and above	First Class with Distinction
2	6.5 and above but less than 8.0	First Class

3	6.0 and above but less than 6.5	Second Class
4	5.0 and above but less than 6.0	Pass Class

14.1. For rewarding the accomplishers with ranks and awards, toppers in each branch discipline are identified based on their academic performance, i.e., CGPA.

14.2. In addition, the 'Gold Medal' and other 'Endowment Awards' are awarded to the 'outstanding students' based on the overall performance, which includes academic, co-curricular, and extra-curricular activities, campus placements, and competitive examinations. A committee appointed by the Head, JSS GIFT, will recommend the eligible student for the award, selected from the nominations received from the departments.

14.3. In addition, the institution may recognize exceptional performance, such as music, dance, sports, etc., and display of exceptional bravery from time to time.

14.4. Only such candidates who complete qualifying credits shall be eligible to receive awards/ranks.

14.5. The candidates availing spill-over semesters will not be eligible for the award of merit scholarships.

15. AWARD OF DEGREE

On successful completion of the prescribed requirements of the program, the degree shall be conferred during the convocation of JSS GIFT.

For the conferment of a degree, the student has to fulfil the following requirements:

15.1. The student must be a bona fide student and must have undergone the coursework as per the regulation.

15.2. The student must have successfully completed all the courses as prescribed in the respective curriculum.

15.3. The student must have acquired qualifying credits.

15.4. The student must have obtained no-due certificates as prescribed by JSS GIFT.

15.5. There must be no disciplinary proceedings pending against him/her.

Consequent upon being convinced, following an enquiry, the Academic Council may resolve to withdraw the degree/diploma / any other certification provided by the institute. The aggrieved may, however, prefer a review of such a decision by the university, citing cogent reasons for review, or go in for an appeal to the Executive Council of the institute.

16. SOME ADDITIONAL PROVISIONS

16.1. Add-on Research Honors

A candidate can opt for Add-on Research Honors, which shall be an enhancement to Add-on Major. Twelve credits out of 20 credits may be earmarked to take up research-focused courses or carry out intensive research over 2-3 consecutive semesters during the 6^{th} -8^{th} semesters of B.Sc. Honors.

Only those candidates who have an aptitude for research and have proven academic competency in their studies, preferably along with the completion of a course on Research Methods, will be permitted to take up Add-on Research Honors.

16.2. Inter-Institutional Credit Transfer

Students pursuing an undergraduate program in another recognized Higher Education Institute (HEI) could be admitted into JSS GIFT, subject to approval by a committee constituted by the institute. In this case, the student shall furnish the transcripts or grade cards, syllabus copies, educational certificates, and other relevant documents while applying for admission.

The committee will establish the equivalency based on the marks/credits obtained in the courses in the previous institute by following the Inter-Institutional Credit Transfer policy.

16.3. Voluntary 'Drop' and Sabbatical Semester Option

A candidate may exercise his/her option to voluntarily exit from the Integrated M.Sc. program temporarily for a semester during the integrated passage by registering for a 'DROP option' at the beginning of the semester.

The DROP can also be exercised to take up special Internship / Innovation / Exploratory / Entrepreneurship / Advanced Research / Start-up and such related activities. Under such circumstances, a candidate can normally avail of DROP over two successive semesters. Such a 'Drop' semester will be identified as a Sabbatical Semester.

Such a candidate must pay the regular semester fee if such a Drop option is utilized during the first 10 semesters of the integrated passage and has to pay a nominal semester maintenance fee during the spill-over period if the candidate has not yet completed the credit requirements.

Upon returning from such a temporary exit, a candidate may continue his/her Integrated M.Sc. studies utilizing the provision of the spill-over period. A candidate may also submit a claim for credit equivalence for the activities undertaken during the sabbatical period.

The equivalence committee would evaluate and assess the academic equivalence of the work carried out and would recommend the credit equivalence and credit transfer to be granted, together with the grades that could be attributed, if applicable.

However, the maximum duration of the program should be limited to 10 years, and further extension beyond the stipulated maximum duration of study must be approved by the institute if the candidate appeals for an extension.

16.4. Voluntary 'Drop' with Semester Drop Option

A candidate may exercise his/her option to voluntarily exit from the Integrated M.Sc. program temporarily for a semester during the program by registering for a 'DROP option' at the beginning of the semester to meet family/personal exigencies.

All the norms as mentioned in the section above shall be applicable to the candidates utilizing the semester drop option.

16.5. Interpretation of Rules

1. The academic rules and regulations should be read for the purpose of any interpretation.
2. For the matter(s) not covered herein above or for unforeseen circumstances arising during implementation of the above regulations, the matter will be sorted out by the Head, JSS GIFT. The same shall be reported to the next meeting of the Academic Council for ratification and subsequently informed to the Executive Council.
3. The institution may change or amend the academic rules and regulations or curriculum at any time, and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the institution.
4. Procedures and explanations may be brought out as applicable from time to time with due approval by the Chairman of the Academic Council.

APPENDIX

Research- dominant M.Sc.-Honors (M.Tech.) pathway for Research – enthusiastic scholars and working professionals, qualified with an appropriate 4-year degree.

Preamble:

National Education policy.2020, proposes to encourage research enthusiastic candidates to pursue research studies subsequent to the completion of a 4-year degree program. Although it is possible that they can register for Ph.D., some of them could feel that Ph.D. degree program could be a longer route, and they would like to receive a master's degree by research to get into suitable professions. Equally, these are highly motivated working professionals, who would like to reorient their professional journey into research based one. Although they could register for Ph.D., they may also desire to give an initial try to get a master's degree by research. Hence, this appendix to regulations provides alternate research – dominant based pathway for the award of M.Sc.-Honors (M.Tech.) for candidates qualified with a minimum of 4 years degree in an appropriate discipline.

A.1 An alternate research- dominant / Dual pathway

Proposed 2 years - 4 semesters program leading to the award of M.Sc.-Honors for the candidates who have a minimum 4 years degree qualification in a suitable discipline is similar to M.Tech./M. E. program in India or M. S. program abroad. Subsequent to a 4-year degree such as B.E., B.Tech., B.Sc.–Honors, B.S., conventional M.Tech./M.E./M.S. programs are course work based with project / research work towards partial fulfilment. However, the proposed M.Sc.-Honors by research pathway is dominantly research based and the course work is going to be supportive to the proposed research work by a candidate.

It may be noted that the proposed research dominant dual pathway for M.Sc. Honors is identical to M.Sc. – Engineering by research of I.I.Sc., M.S. by research of I.I.Ts

This program, being richly research oriented Master's degree program, enhances the research culture and encourages working industrialists/professionals /scientists/engineers/technocrats/teachers to improve their qualification. Working professionals will have the option to complete their degree programs opting for slower pace.

A .2 Eligibility for Admission

A.2.1 Candidates who satisfy the following three conditions are eligible to seek admission

I. The candidate should have an M.Sc. degree or equivalent degree OR should have an appropriate 4-year degree or equivalent such as B.Sc. – Honors / B.S., / B.E., / B.Tech., / M.B.B.S., / B. Pharm. / with an overall minimum of 60% of marks or C.G.P.A of 6.5 in a10-point scale. However, working professionals with a minimum of 5 years of experience in a specific discipline of knowledge may seek exemption.

II. The candidate should have a strong inclination for research and should be well acquainted with the state-of-art intelligent technologies, which should be provable/demonstratable.

III. The candidate should be a working professional and his/ her area of proposed research work should originate from and /or relevant to his /her profession/organization.

OR

The candidate should have been hired by a research investigator / an institution as full-time project assistant/research assistant / J.R.F./ S.R.F. on a research project/ Teaching assistant for at least 24 months' duration.

OR

The candidate should get a sponsorship or fellowship by any external agency/industry or should clearly demonstrate a self-supporting arrangement and should be able to sustain for at least 24 months as a regular scholar.

OR

A regularly employed / self-employed person who can afford to go with a slower pace only, has to put in at least 30 months to complete the requirement.

A.2.2 Application for M.Sc.-Honors by research program shall be open round the year, and admissions made will be aligned with the commencement of the next semester.

A.3 Credit Requirement

Credit requirement will be similar to conventional M.Sc.- Honors degree as a post 4 years degree program. For the sake of clarity, the part of the Table 1 from section 5 is reproduced:

M.Sc.-Honors degree as a post 4-year degree program	68 credits
M.Sc.-Honors degree with add-on Graduate Diploma	68 + 16 credits

A regular scholar may register for a max of 20 credits/ semester accumulating a min of 68 credits over 4 semesters

A candidate may opt for slow-pace and can earn the required 68 credits over 8 semesters (double the regular duration). A slower pace candidate should at least put in 30 months to complete the degree requirements.

While a regular candidate may seek an extension by 4 more semesters (additional 2 years), a slower pace candidate's request for extension may be considered for an extension by one more year (2 semesters) after the completion of the permissible duration of 8 semesters.

A candidate may earn an Add-on Diploma by earing 16 add-on credits, as per the provisions.

A.4 Program Structure

A.4.1 Every candidate who seeks admission will be attached to a guide / an advisor from the institution who will be the mentor for the candidate till he/she completes the program.

A.4.2 At a given point of time, a guide / an advisor may have a maximum of 6 candidates with him / her registered for M.Sc. Honors by research program.

A.4.3 A prospective candidate may be required to convince the selection committee constituted by the institution about the area of his research interest, relevance of his research interest to his profession/ organization, support mechanism available for him/ her to complete the research requirements and above all his/her aptitude for research studies, and his preparedness to take up the program.

A.4.4 Before the formal commencement of the program, the candidate in consultation with his/her guide (advisor) should have decided the area in which he/ she would undertake research. An appropriate title for the research project and an abstract should also be prepared.

A.4.5 Based on the area/topic proposed for the research project, the guide (advisor) will propose the course work to be undertaken by the candidate and will coordinate the completion of course work by the candidate.

A.4.6 The suggested distribution of credits for undertaking the course work and research work is as follows-

Category of courses	**Credits**
Advanced level Breadth specific courses relevant to research area chosen.	12 credits
Research area-based Depth specific courses	12 credits
Research-orientation courses	12 credits
Research Project	32 credits

A.4.6.1 Each course suggested for breadth, depth, and research orientation may be of 4 credits, preferably of the type 1:2:1 / 1:1:2 / 1:3:0 / 1:0:3. The course of type 2:1:1 / 2:2:0 / 2:0:2 may also be considered. The central idea is that the candidate must put in the best self-effort.

A.4.6.2 The candidate may attend the ongoing classes and earn the credits, if the courses are offered in the ongoing semester. Otherwise, the candidate will be attached to a suitable faculty member to earn the credits.

A.4.6.3 The guide/advisor will be wholly responsible for the candidate to complete the credit requirements for the research project.

A.4.6.4 For every candidate, a progress review committee will be constituted, which will consist of 2 experts, one of them is the guide himself/herself acting as the coordinator of the committee and the other may be chosen from within the institution or from sister institution or from other/ external organization/company / institution. In case the research is inter-disciplinary in nature, and the guide expresses the willingness to have one more expert in the review committee, a third member may be appended.

A.4.6.5 The breadth, depth and research orientation credits tallying to 32 credits, should generally be earned in the first two semesters. The sequence in which the courses have to be studied over semesters should also be indicated by the guide.

A.4.6.6 The research project, in a normal mode, should be carried out in 3rd and 4th semesters. The progress review committee will design a suitable structure for formative assessment (FA-1,2,3,4) and summative assessment for 70% and 30% respectively as per the regulation, individually for 3rd and 4th semesters.

For the purpose of summative assessment of the thesis submitted, after the completion of 4th semester, there will be an adjudication committee consisting of the following three members.

i. Guide

ii. Other member from the progress review committee and

iii. An external expert (chosen from a panel of 3 external experts proposed by the progress review committee/guide)

A.4.6.7 However, before submitting the thesis for final adjudication, the candidate should have earned all pre-requisite credits and should have completed the formative assessment requirement for the thesis work in the 4th semester.

A.4.8 Suitable honourable exits as per JSS GIFT regulation may be admissible.

A.4.9 A candidate may be permitted to change the title and scope of research on recommendation of the research review committee/guide provided the area of research remains same.

A.4.9.1 If the candidate desires to change the area of research, he /she may get at most the advantage of transfer of credits by way of credit equivalence.

A.4.9.2 Change of guide may be considered in case of drastic change in the area of research and if the allocated guide expresses so.

A.5 The candidate may submit his willingness to continue for Ph.D. after submission of dissertation for M.Sc.-Honors degree by research.

