

Program Project Report (PPR)

for

Distance Learning Program under

Graphic Era Directorate of Distance and Online Education

MS in Computer Science

Graphic Era deemed to be University

Dehradun, Uttarakhand

PROGRAM PROJECT REPORT

1.	Degree Awarding body	Graphic Era Deemed to be University
2.	Teaching institution	Graphic Era Deemed to be University
3.	Name of the Program (specified by UGC / AICTE etc.)	MS in Computer Science
4.	Minimum duration of the program (yrs.) as per UGC norms	2 year
5.	Minimum eligibility for admission	Bachelor Degree from a recognized University
6.	Program Credit	72
7.	Program level	Post Graduate
8.	Nature of Target Group of Learners	Graduate Adults/ Professional Learners/Experienced Professionals
9.	Date of commencement	July 2019
10.	Type of Program: Professional or General	General

a) **Program's mission & objectives:**

Mission statement :

To provide quality education in computer science through the combination of theory, and practice to enhance students' compatibility in applications development, and to prepare next generation of engineers, and computer scientists and IT professionals including business and security aspects of these applications and their interaction with mobile software development.

Program Objective

- The graduates will become successful professional by demonstrating logical and analytical thinking abilities in the area of software development.
- The graduates will demonstrate a breadth of knowledge in computer science, as exemplified in the areas of systems, theory and software development.
- The graduates will demonstrate ability to conduct a research or applied Computer Science project, requiring writing and presentation skills which exemplify scholarly style in computer science.
- The graduates will combine scientific inquiry, statistical knowledge, substantive expertise, and computer programming knowledge to become an expert in this domain
- The graduates will work and communicate effectively in interdisciplinary environment, either independently or in team, and demonstrate scientific

leadership in industry.

- The graduates will engage in lifelong learning and professional development through scholarly activities such as discussion, professional studies and research.

b) Relevance of the program with HEI's Mission and Goals :

Institutional Mission:

To provide education at all levels in all disciplines of modern times and in the futuristic and emerging frontier areas of knowledge, learning & research and to develop the overall personality of students by making them not only excellent professionals but also good individuals, with understanding and regards for human values, pride in their heritage and culture, a sense of right and wrong and yearning for perfection and imbibe attributes of courage of conviction and action.

Institutional Goals:

- To understand the student's aspirations, corporate goals and the policies of Govt. and design programs in the specific field to meet the overall education needs and develop the skills and competencies accordingly.
- Provide efficient admission counseling, registration, and student support system to demonstrate our commitment to help students and faculty to show that we indeed care for them.
- To create a conducive learning environment.
- Constantly improve systems and processes in accordance with feedbacks and random surveys on student's assessment.
- To provide an educational delivery system that is flexible, technology driven meets the prevailing requirements and is cost effective.

Linkage with Program Mission:

The institute's mission goals are holistically inherited in this program. This program intends to produce extremely well-rounded computer scientists and software experts with deep knowledge of mathematics, expertise in relevant tools/languages and understanding of cutting-edge algorithms and applications. Our vision is to design and deliver a quality online MS Program in Computer Science is focused on empowering technology professionals for fast track careers in software development and allied technology areas and help India capitalize the next generation of computing softwares. The program will equip the students with the perfect mix of business acumen and technical capabilities to help you contribute to this technological revolution. This program delivers required theoretical and industry inputs to students that develops creative thinking to make them experts and professionals in the field. The programs offered allow the learners to learn at their own pace along with pursuing their other professional endeavors.

c) Nature of prospective target group of learners

The MS in CS is designed for:

- Professionals with who hold a bachelor's degree (at a minimum) in a technical area such as computer science, statistics, physics, electronics or electrical engineering
- Anyone whose work interfaces with data analysis who wants to learn key concepts, formulations, algorithms, and practical examples of what is possible in software development.
- Managers who need the vision and understanding of the many opportunities, costs, and likely performance hurdles in predictive modeling, especially as they pertain to large amounts of textual (or similar) data
- Professionals looking for a deeper understanding and hands-on experience with expert faculty.

d) Appropriateness of program to be conducted in Open and Distance Learning mode to acquire specific skills and competence :

Demands of skills and competencies are changing rapidly, due to changes in Technology in all areas of the industry, which urges for provision of flexible, work-integrated, continuous training, learning and development opportunities through Higher Education Institutions. There is a dire need for a paradigm shift in the training approaches in the formal and informal sector for developing skills in concurrence to the societal and industrial needs. The traditional and formal educational delivery may not achieve this at rapidly changing demand with flexible approach. Provision of appropriate skills may thus be an important intervention to increasing the productivity of employment workforce.

Distance and Online education is a cost-effective solution and can take place while one continues with other employment. Given its scope, the program will benefit aspirants seeking to develop skills, improve competency, and build expertise in the fast growing field of Machine Learning, Data Analytics and Artificial Intelligence.

GEU as a distance and online learning institution plays important role by providing flexible and cost effective education to enhance productivity skills. GEU offers outcome based education, having highly industry centric curriculum. This enables the students to satisfy their scholastic needs and aspirations as the system provides enhanced learning opportunities. The curriculum, pedagogy and assessment process are driven by the desired outcome. Outcome Based Education promises high level of learning for all students as it facilitates the achievement of the outcomes, characterized by its

appropriateness to each learner's development level.

A team of faculty & professionals from both regular & distance learning institutes & industry determines the objectives. It is then vetted by Board of Studies and Academic Councils. The program objectives are determined with a view that it meets the requirement of the industry. Therefore, the consistent interaction with the industry becomes necessary to revise and update the program objective to meet the requirement.

Outcome based education system is a systematic, evaluative process that is implemented to secure learning experiences that are congruent with original goals and objectives; thereby providing a basis for the effectiveness and continuous quality improvement of the Program of study. It focuses on the measurement of outcomes that have taken place based on strategies and actions implemented in the pursuit of achieving a pre-determined objective.

Our Programs have well defined Program Education Objectives (PEOs) and Program Learning Outcomes (PLOs) for its programs. The relationship of PEOs and PLOs are clearly indicated through the mapping of learning outcomes with the established Objective. Each outcome addresses some objective and achievement of outcome indicates the attainment of Objective. The assessment of each learning outcome is done annually to identify that the established learning objectives are achieved. The gaps identified after the analysis are addressed through the properly laid action plan.

The results of the annual assessments and other data are used to determine the effectiveness of the Program during the Program review process. It also ensures that outcomes achieved are consistent with the mission of institution, domain and University.

Each course has its specific Objective around which the entire curriculum is built. The Learning Outcomes are the results of the course and must lie in complete harmony with the assigned Objectives. In order to ensure that the objectives and outcomes are in complete synchronization with the course outline, the department uses a list of assessment methods to analyze the output by examining the learners from different aspects. Program Educational Objectives/Goals and Learning Outcome of Business Management Programs have been developed.

Program Outcomes:

- Use and apply current technical concepts and practices in the core computer software development.
- Identify problems in the field of software development, analyze them and design the system or provide the solution for the problem considering legal, ethical and societal issues.

- Use appropriate tools and variety of sources to evaluate multiple points of view for analyzing and integrating information to conduct critical reasoned arguments..
- Have the scientific and technical knowledge and skills necessary to allow identifying pertinent computing problems and formulate corresponding research plans to develop and evaluate computations techniques and models to solve problems in any related discipline.
- Be able to communicate and present research outcomes to a range of audience both orally and in writing.
- Communicate effectively and work in a team as well as individually.

e) Instructional Design :

Student support service systems.

As we know from experience, students are more likely to succeed when they feel connected to a supportive, inclusive, and academically challenging learning environment. This is particularly true when it comes to online students, who do not have the benefit of a physical campus community. So in providing them with an online learning experience that not only meets, but exceeds their expectations, we have to create and nurture a virtual campus community that incorporates the support services and systems they need to be successful throughout the student lifecycle – from enrollment to graduation and beyond. Students are supported in all phases of their Academic progression with GEU.

Prior Learning Assessment (PLA) : Students can speak to someone about your work and personal experience, get guidance on what may be applicable to the chosen field of study, and find out how they can document that experience. Students are duly provided information about programs, courses, entry requirements, application procedures, structures, functions, rules, and regulations of the institute, recognition of institute, special features of the programs and so on.

On-Joining Support: On completion of admission the students are provided with a detailed guide on the course. An academic coordinator is appointed who will help the students in every step of their course progress.

On Program Completion: Students are guided on getting their diplomas and certificates. In additions placement assistance is also provided.

Student's feedback sessions are conducted for students to share their valuable feedbacks. Feedback is collected on periodical basis during the Academic The suggestions from students are also obtained where they can feed their

suggestions/complaints for any point of concern. The complaints/suggestions are entertained by different level of hierarchy of the institution. Academic LMS portal mitigates the challenge of seamless Student –Institution communication. Highly technology enabled platform is available for the students to quote their issue, which are answered by our well trained counselors. Students interact with our counselors either through telephone; email, chats or they directly log into their student's zone & register their complaints.

All queries are resolved within stipulated time.

Study time	Approx. percentage of Credit
Print material including Audio/Video material	20%
Work related exercises practical/Quizzes and Assignments	30%
Through Web conferencing tool/internet based.	50%

Program Structure : MS Computer Science

Course Code	Course Title	Lectures (L) Hours Per Week	Audio visual studies Per Week	Assignments / Self Studies Per Week	Total Credit
OMS101	Advanced Computer Architecture	1	1	8	5
OMS102	Advanced Computer Networks	1	1	8	5
OMS103	Combinatorial Mathematics	1	1	8	5
OMS121	Lab	1	-	8	3
	Total				18

SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Audio visual studies Per Week	Assignments / Self Studies Per Week	Total Credit
OMS201	Advanced Algorithms and	1	1	8	5

	Complexity				
OMS202	Advanced Operating Systems	1	1	8	5
OMS203	Discrete Structures for Computer Science	1	1	8	5
OMS221	Lab	1	-	8	3
	Total				18

THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Audio visual studies Per Week	Assignments / Self Studies Per Week	Total Credit
OMS301	Secure Software Engineering	1	1	8	5
OMS302	Advanced Systems Security	1	1	8	5
OMS303	Digital Image Processing	1	1	8	5
OMS331	Lab	1	-	8	3
	Total				18

FOURTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Audio visual studies Per Week	Assignments / Self Studies Per Week	Total Credit
OMS401	Computer Crime and Forensics	1	1	8	5
OMS402	Advanced Machine Learning	1	1	8	5
OMS403	Advanced Computer Vision	1	1	8	5
OMS424	Dissertation	1	-	8	3
	Total				18

*20% MOOC credit to be considered as per the University Norms.

- Duration of the program, 1 Year
- Faculty and support staff requirement: 2

f) Procedure for admissions, curriculum transaction and evaluation

Academic Programs/Courses will be conducted by Graphic Era Directorate of Distance & Online Education(GDDOE) in Online Learning Mode which may be termed as “flexi-mode” for award of Degree, Diploma and Certificate. Their Course Structure, Minimum Eligibility conditions and entry level qualifications for Admission and their minimum and maximum duration shall be as approved by the Academic Council and the Board of Management.

Eligibility Criteria for admission – For Students with Indian Education

Bachelor Degree from a recognized University

Note: The candidates must have secured a minimum of 55% marks in their qualifying examination

For Students with Foreign Education

- O level Certificate (completing 10 years of formal schooling. Diploma will not be acceptable)
- A level Certificate (completing 12 yrs of formal schooling. Diploma will not be acceptable)
- Graduation Degree in IT / Computer Science / Electronics / Telecommunications / Electrical / Instrumentation. with Minimum 40% or equivalent or Post Graduate Degree in Mathematics / Statistics / Physics/ Computers
- Certificate of equivalence from Association of Indian Universities (required by any student with foreign education to apply in any University in INDIA, refer to www.aiuweb.org)

Procedure For Admissions

a) The University will notify Academic Calendar of Programs/Courses for compliance by GDDOE.

b) Based on the calendar GDDOE finalize the entire schedule of admissions. The student can now file the Application Online uploading the attested copies of relevant documents. The documents are verified at various levels and upon verifying the eligibility payment link is offered to student to pay the fee online through payment gate way. Information brochures and prospectus are available online and can be accessed any time.

Course Fee Structure

(Amount In INR) 15,000 / Sem

(Payable on semester basis which include all deliverables)

The fee payment options are available per both offline with DD and online mode on www.geu.ac.in and using NET banking.

Program Delivery Policy

Graphic Era has established a robust Academic Delivery mechanism to ensure Quality

Education at every stage.

- Blended Mode of Academic Delivery
- Periodic review of Curriculum and Study material
- Live Interactive lectures from eminent faculty experts
- Systematic and structured Personal Contact Programs
- User friendly LMS as Learning platform
- 24x7 Academic & Technical support
- Full-fledged archived class-room recorded lectures

Graphic Era has a pool of Qualified expert faculties from IITs/NITs and Reputed Foreign Universities and dedicated academic counselors to support and mentor students to make learning more engaging and maintain high level retention.

Our coursewares have measurable Learning outcomes; outcome is assessed with the Continuous Assessment process. Course Delivery Plan is given to the students at the commencement of new Academic Session; it is uploaded on LMS.

Personal Contact Programs (PCPs) constitute doubt clearing sessions where students interact with the subject experts (Faculty) & may clear their doubts at selected locations. It helps the students to develop better understanding of the concepts studied through Self Learning Material (SLM). PCP schedules are invariably posted on GDDOE.

At Graphic Era, academic excellence is the central focus of teaching and learning. The academic rigorous and relevancy provide the students an advantage to grow into leaders in their chosen fields.

Graphic Era Distance learning Program has a schedule of activities within prescribed time frame. The Academic Calendar includes all teaching-learning activities, for complete academic year.

Teaching Pedagogy

Graphic Era Online Programs are delivered in Blended Learning Mode. It is pedagogical approach applied to the practice of using both online and instructor-led learning experiences when teaching students. In a blended-learning methodology we have integrated online with traditional face-to-face class activities in a planned, pedagogically valuable manner. Graphic Era has established virtual facilities as component of the learning environment which is focused around the pedagogical use of modern educational practices to support blended learning. Learner Support Services are provided through the campus-wide web portal and e-Learning platform. A pedagogical approach with application of ICT and expertise in e-learning provides a seamless learner-centered environment. Faculty - Students Personal Contact Session helps students to clear their doubts and engage in learning activities.

Evaluation Policy

- Evaluation of student performance in each course-unit has two components: (a) internal continuous assessment (course work) and (b) the semester/year examinations which are held at the end of Semester/Academic Year.
- The level of student academic performance as the aggregate of continuous evaluation and end semester/year examination is reflected by letter grades on a ten-point scale according to the connotations given below:

Per Cent Marks in a Course	Grades	Grade points	Rating
>85	O	10	Outstanding
75-84	A+	9	Excellent
65-74	A	8	Very Good
55-64	B+	7	Good
50-54	B	6	Above average
45-49	C	5	Average
40-44	P	4	Pass
<40	F	0	Fail
	AB	0	Absent
	DB	0	Debarred

The grades shall be awarded on the basis of cutoff marks or grade boundaries decided as follows:

Calculation of SGPA & CGPA

SGPA

$$SGPA = \frac{\sum_{x=1}^n C_x \cdot GP_x}{\sum_{x=1}^n C_x}$$

where,

C_x = Number of credits assigned to the x^{th} course in a semester

GP_x = Grade Point earned in the x^{th} course

n = Number of courses in the semester

CGPA

$$CGPA = \frac{\sum_{i=1}^N C_i \cdot GP_i}{\sum_{i=1}^N C_i}$$

where,

C_i = Number of credits assigned in the i^{th} course

GP_i = Grade points earned in i^{th} course.

N = represents the number of courses in which student was registered and earned a grade 'P' and above up to the semester for which CGPA is to be calculated.

MINIMUM ACADEMIC REQUIREMENTS:

The student must score a minimum Grade 'P' in each course unit.

The minimum passing SGPA for each semester is 4.5 for Under Graduate Programs and 5.0 for Post Graduate, Integrated and Dual Degree Programs.

The student should secure a minimum overall Cumulative Grade Point Average (CGPA) of 6 in the case of Post Graduate, Integrated and Dual Degree Programs and 5.0 in the case of Under Graduate programs at the end of final year.

- Course credit units are integer numbers indicating the weightage assigned to a course unit, project etc. on the basis of contact hours per week on all learning activities.

Activity Planner (Calendar)

S.No	Event	Batch	Last Date
1	Commencement of Semester	January	June
		July	Dec
2	Dispatch of Study Material Within	January	Within 15 Days of Admission
		July	Within 15 Days of Admission
3	Assignment Submission	January	Will be notified
		July	Will be notified
4	End Term Examination	January/July	2nd Week Of June (ETE June)
			2nd Week Of December (ETE December)
5	Result Declaration Of End Term Examination	January	Last week of August
		July	Last week of February

g) Requirement of the laboratory support and Library Resources:

- Virtual Labs and online tools are provided to supplement the course where students can do Online Practical Sessions.
- Course material in standardized format.
- Provision of Reference materials: The Institution provides reference materials to students who want to get extra knowledge on a particular subject.
- Personal Contact Program (PCP): The Institution conducts Personal Contact Program (PCP) at weekends to help students interact with the faculty and get their queries and doubts resolved.
- One to One classes: From time to time, the Institution conducts one to one class online for students on demand basis.
- Doubt clearing session: A provision to interact with subject faculties is also facilitated to students. Students can clear their doubts one to one with faculty members.
- Assignments, Case Studies, Project Work: Apart from the main learning material, students are provided with assignments, case studies and project work. These learning components are
 - generally based contemporary situation in the industry and markets.
- Leadership Lecture Series: The Institution conducts Leadership Lecture Series, a face to face program to help students gain leadership skills.
- Webinars
- Recording of seminar / Conference / Workshop available Online
- Guidance by Course coordinator through telephone email & chat rooms: Students are provided guidance by Course coordinator as and when required through telephone, email & chat.
- Online Library access; The students access to online library, which hosts a large number of books in digital format.
- Mentor-mentee concept: Institution believes in strong mentor-mentee concept. Students queries are answered by mentors suitable. This has proved to be very effective tools between
 - Institution & students.

- Special session on technical subjects: Some of the subjects requires extra efforts, therefore extra session are planned for the same.
- Virtual recorded classes: Lectures with their busy schedule ay not spare time during PCP's. The recorded lectures are available.
- Occasional Workshops / Guest lecture: the Institution arranges workshop & guest lecture by an industry leader to help students know the view of the industry.

h) Quality assurance mechanism and expected program outcomes :

GEU has constituted Internal Quality Assurance Cell (IQAC), as per the guidelines of National Assessment and Accreditation Council (NAAC) in which academicians, industry representatives and other stakeholders are nominated as members. IQAC has a mandate to review the teaching and learning process. The Primary aim of the IQAC is to develop a system for conscious, consistent and catalytic action to improve the academic and administrative performance of the institution.

The courses of GEU are also audited by ISO every year

The process of regular feedback is carried out to ensure the quality of the Programs. The feedback form is shared per student zone on their learning management system. A few of the criteria questions if the Program fits to enhance their professional goals, to check the program content quality and its relevance, on addressing the queries of students, response rate from students' support team, rating of quality of videos, effectiveness of the examination system, appropriateness of technology, video lectures, and students' overall satisfaction as a distance learner.

Based on students' feedback and internal review of the Programs, the content of the Program is reviewed for its relevancy in the industry every year. This is the process followed to ensure the academic excellence and practical application of the Program.