Section A:								
Course Code	MAT240							
Course Title	Algebra I							
Course Credits	4	**No. of Contact Hours/week**	**L:**	3	**T:**	1	**P:**	0
School	School Of Natural Sciences							
Offered By	Mathematics							
Method of Instruction:	In Person	**Offered in:**	Spring Semester	Full Semster				
Check each box, when applicable, if the course covers one or more of the below listed attributes								
☐	**REALS**	☐	**VELS**	☐	**DISE**			
Prerequisites	None							
List The Courses Which May Be Like This Course. So, If A Student Has Already Done A Course From This List, They Should NOT Register For This Course, I.E. It's A Negative List								
Fill this, if applicable: A Similar Course Was Offered With Code ..... In Year								

NOTE:

Section B:This course is offered as (use checkbox) for which Programs			
☒	Major Core for:	Mathematics	Not required
☐	Major Elective for:	Enter The Name Of the Program(S) For Which This Is a Major Elective	Instructor's Approval
☒	UWE for:	All	Not required
☐	Project /UG Thesis / Internship	Any Other Information	Instructor's Approval
☐	CCC for:	Choose a Category	Instructor's Approval
☐	Specialization (If applicable)	Mention The Specialization	Instructor's Approval
☒	Minor (If applicable)	Mathematics	Not required
Estimated No. of Seats:	40	Estimated Number of Sections	1

Section C: State the Program Learning Goals of the Major Degree Program mapped to the Core Course (Applicable to Major Core courses only)
PLG1
PLG2
PLG

Section D: State the Course Objectives / Aim (Specific details of what the course intends to achieve in terms of student knowledge and ability. Items should begin with phrases such as "To provide students with …", "To enable students to …", "To develop students' skills in …" and so on.)
1. Enable students to appreciate the pervasive nature of groups in mathematics 2. Show students the relations of groups with symmetry and structure 3. Develop students' skills in constructing and classifying groups

Section E: State the Learning Outcomes (A list of what students will know or be able to do as a result of successfully completing the course. Should be expressed as knowledge, skills, or attitudes.)
On successful completion of the course, students will be able to:
1. Construct And Distinguish Groups Of Small Order. 2. Recognise Cyclic Groups And Be Able To Find Generators Of Their Subgroups. 3. Express A Given Finite Cyclic Group As The Direct Product Of Cyclic Groups Of Prime Power Order. 4. Express Products Of Elements Of A Group Defined By Generators And Relations In Appropriate Standard Form. 5. Use Group Actions To Analyze The Structure Of Groups And Related Spaces. 6. Perform some basic calculations on finite Groups using the GAP Software.

Section F: State if course contributes to any skill development
Be Able To Use The Software GAP For Finite Group Calculations.

Section G: Module-wise Curriculum Content (Syllabus, Lab work, Project, Term paper, Group work, etc.)
1. Groups: Definition, Examples and Elementary Properties. Subgroups: Subgroup Tests, Subgroups Generated by Sets, Cyclic Groups, Classification of Subgroups of Cyclic Groups, Cosets and Lagrange's Theorem. 2. Normal Subgroups and Quotient Groups, Homomorphisms, Isomorphisms and Automorphisms of a Group. Conjugates, centre, centralizer, normalizer. Cayley's Theorem. Direct Products, Finite Abelian Groups. 3. Permutation Groups: Definition, Examples and Properties, Symmetric Group of n Letters (Sn), Alternating Group on n Letters (An). 4. Group Actions: Orbit stabilizer theorem, Cauchy's theorem, Cayley's Theorem, Sylow's theorems and applications. 5. Use of GAP for doing basic group operations. Add additional sheet(s), if required

Section H: Text Book(s), Reference book(s) and any other study material

1. Contemporary Abstract Algebra by Joseph A. Gallian, 4th edition. Narosa, 1999.
2. Algebra by Michael Artin, 2nd Edition. Prentice Hall India, 2011.
3. Topics in Algebra by I.N. Herstein, 2nd Edition. Wiley India, 2006.
4. A First Course in Abstract Algebra by John B. Fraleigh, 7th Edition. Pearson, 2003.
5. Undergraduate Algebra by Serge Lang, 2nd Edition. Springer India, 2009.
6. Abstract Algebra by David S. Dummit and Richard M. Foote, 3rd Edition. John Wiley and Sons, 2011.
7. Algebra by G. Santhanam, Narosa Publishing House.
8. GAP : https://docs.gap-system.org/doc/ref/chap0_mj.html
9. Online tutorials and GAP Manual : available online on the main GAP website : www.gap-system.org)

Section I: Please fill in all the rows for the applicable rows. For evaluation component not included in the list, use the last two rows and mention the evaluation component in the corresponding last column. Please see the NOTE below this box for the prorate policy.

	Component	Weightage %	Missed Graded Component Policy	Use of Gen AI policy	Any Other Information
☒	Mid Sem Exam	30.00	Assign marks on a Prorated basis	Prohibited: No Gen AI	other info
☒	End Sem Exam	30.00	I grade awarded on approval from De	Prohibited: No Gen AI	other info
☐	Quiz(s)	15.00	Assign marks on a Prorated basis	Prohibited: No Gen AI	other info
☐	Assignment(s)	15.00	Assign marks on a Prorated basis	Prohibited: No Gen AI	other info
☐	Lab	0.00	Please Select	Prohibited: No Gen AI	other info
☐	Project	10.00	None	Prohibited: No Gen AI	other info
☐	Case Studies	0.00	Please Select	Please Select	other info
☐	Group Discussion	0.00	Please Select	Please Select	other info
☐	Any Other Component	0.00	Please Select	Please Select	other info
☐	Any Other Component	0.00	Please Select	Please Select	other info
	Total **Weightage** (%)	100.00			

Note:
a) While you may mark multiple evaluation components for pro-rate. However, if a particular student misses multiple evaluations, *not more than 20% of the evaluation can be prorated for that student.*
b) The best n out of m: Please make sure that n < m.
c) Award of 'I' grade is applicable only in the case of the End-term Exam. Additionally, end-term exams or final assessments cannot be prorated or waived.
d) Individual faculty can decide the prorate policy for each component.
e) 'None' as an option can only be used in exceptional cases, for example lab evaluated by an external expert

Section J: Grading Policy (*Tick the one You intend to follow)*				
☒	**Relative** Grading	At Least 93% Is Surely A And At Least 40% Is Surely Pass.		Round UP in the final grading.
☐	Absolute Grading	**Grade**	**Range** *(replace M's appropriately)*	Please Mention The Rounding Off Policy And Any Other Information
		A	M1 <= marks <= M2	
		A-	M1 <= marks <= M2	
		B	M1 <= marks <= M2	
		B-	M1 <= marks <= M2	
		C	M1 <= marks <= M2	
		C-	M1 <= marks <= M2	
		D	M1 <= marks <= M2	
		E	M1 <= marks <= M2	
		F	M1 <= marks <= M2	

Section K: Details about instructors teaching this course. For multiple instructors in a course, mention each name once after the other					
Name of the Instructor(s):	Neha Gupta Prof XYZ Prof ABC			**Section(s)**	L1 L1, L2, L3
Office Location	A111f K 120 L 325	**Tel. Extension***	265	**Email:**	neha.guta@@snu.edu.in abc@snu.edu.in xyz@snu.edu.in
About the Instructor(s): Click Here To Enter About 250 Words about each instructor teaching the course`					

***** - Optional

Section L: Office Hours
Please let the students know the day(s) and time slot(s) for any consultation. You may update this at the start of the semester.

Section M: Any other information
Any other information you would like to specify in relation to the above course