SANT GADGE BABA AMRAVATI UNIVERSITY, AMRAVATI

NEP v-23 (post-Three Year UG) PG Non-Professional PROGRAMME

Draft Provisions for Ordinance/Regulation/Direction [Common]

1. In this Direction unless context otherwise requires –

   Any other definition, word and expression used herein and not defined but defined in *parimateria* such as the Maharashtra Public Universities Act, 2016 and UGC regulations shall have the same meaning as assigned to them in the said enactments.

NEP Implementation in First Phase:

The credit and curricular framework is to be made applicable, in the first phase, to the following programs (other than those regulated by AICTE, PCI, BCI, CoA, NCTE etc.) with effect from Academic Year 2023-24: PG: M.A., M.Sc., M.Com. and all Non-AICTE professional PG degree programs.

2. With effect from Academic Year 2023-24, Two Years PG Degree Programme with Exit option will be introduced in Sant Gadge Baba Amravati University, hereinafter, referred to as the *university* in this document.

3. As per the scheme of teaching, learning, examination and evaluation, theory/practical examinations of Semester-I, II, III and IV shall be conducted by the University (except for Internal Examinations as applicable)) at the end of each semester.

The theory/practical examinations of all the Semesters shall be held as per the following Schedule.

Table 1

Sr.No.	Name of the Examination	Main Examination	Supplementary Examination
1	Semester-I and III	Winter	Summer
2	Semester-II and IV	Summer	Winter

4. The practical examination of all semesters shall be conducted by the University as prescribed. Practical examination of all the add-on papers of all semesters will be conducted by the college/institution/university department.

5. The examinations specified in Para 2 shall be held twice in a year at such places and on such dates as may be prescribed by the University.

6. An applicant to an examination specified in Para 2 shall pursue a regular course of study in courses prescribed for the examination concerned for not less than one semester in a particular semester in a College/Institute/University department.
Provided that the student shall be eligible to appear for examination if

   a. he/she complies with the provisions of the Ordinance pertaining to the Examination in general from time to time.
   b. he/she has prosecuted a regular course of study in a university department/college affiliated to the University.
   c. he/she has in the opinion of the Principal shown satisfactory progress in his/her studies.

7. Without prejudice to the provisions of Ordinance No. 6 shall be applicable in *mutatis-mutandis* to every collegiate/non-collegiate student.
8. The fees for each theory examination and practical examination conducted by the university shall be as prescribed by the University, from time to time.

9. Credit Framework for Two Years PG Programme

Table A

Year (2 Yr PG)	Level	Sem. (2 Yr)	Major		RM	OJT / FP	RP	CC (Optional)	Cum. Cr. Offered	Degree
			Mandatory	Electives						
I	6.0	Sem I	14	4	4				22	PG Diploma (after 3 Yr Degree)
		Sem II	14	4		4 Cum.			22	
Cum. Cr. For PG Diploma			28	08	4	4	-		44	
	a) Exit option: PG Diploma (42-44 Credits) after Three Year UG Degree upon completion of on-the-job training/internship of 04 credits during summer break in the respective Major Subject									
II	6.5	Sem III	14	4			4		22	PG Degree After 3- Yr UG
		Sem IV	14	4			6	From Sem I to Sem IV 3* Credits Cum.	24	
Cum. Cr. for 2 Yr PG Degree			28	08			10		46 +3*	
	2 Years-4 Sem. PG Degree (88 credits) after Three Year UG Degree									

Table B Distribution of Credits across Two Years PG Degree Programme

Sr. No.	Type of Course		Total Credits Offered	Minimum Credits Required
1	MAJOR			
	i. DSC	56	56	56
	ii. DSE	16	16	16
	TOTAL		72	72
2	Research Methodology and IPR (FSC/DSC: Major)	04	04	04
2	On Job Training, Internship/ Apprenticeship; Field projects Related to Major	04	(120 Hours OJT/FP cum.) 04	(Minimum 60 Hours OJT/FP is mandatory) 02
	Research Project	10	10	10
	OPTIONAL			
4	Co-Curricular Courses (offline and/or online as applicable): Co-curricular Courses: Health and wellness, Yoga Education, Sports and Fitness, Cultural Activities, NSS/NCC, Fine/Applied/Visual/Performing Arts, CC also include but not limited to Academic activities like paper presentations in conferences, Aavishkar, start-ups, Hackathon, Quiz competitions, Article published, Participation in Summer school/ Winter School / Short term course, Field Visits, Study tours, Industrial Visits, online/offline Courses on Yoga (Yoga for IQ development, Yoga for Ego development, Yoga for Anger Management, Yoga for Eyesight Improvement, Yoga for Physical Stamina, Yoga for Stress Management, etc.).		(Limited to Maximum 90 Hours [3 Credits] of CC cumulatively only) 03	00
	TOTAL		93	88

10. Two Years Master's Degree Program with Exit Option

a) With effect from Academic Year 2023-24, Two years Master's Degree Program with Exit Option will be implemented as per the Illustrative Credit Distribution given in the above Table A

b) Credits offered per Semester will be in accordance with **Table A**. While minimum credits are mandatory as per National Credit Framework, the University has evolved the mechanism for providing Semester/ Level wise credit attainment flexibility within the broad framework as shown in **Table B.**

c) Under the One-year PG Diploma program, and two-year master's Degree program, the students must complete on-the-job training/internship of 04 credits during summer break, after completion of the second semester of the first year in the respective Major Subject.

d) The 4 Credits *Research Methodology and IPR* Component has been made mandatory in the First Year.

e) Since the Master's Programme is based on DSC Specialisation, the PG curricular framework does not include Minor Subject. Electives selected in the PG program may be **Relevant to OR Supportive of** the Major Subject chosen. The Statutory authorities of the University or Autonomous College can take a decision in this regard.

f) The students will have to undertake a research project of 4 credits in Semester III and a research project of 6 credits in Semester IV in the second year of the two-year master's degree program.

g) Colleges already having permission and recognition for the PG degree programme along with UG degree programme in the same Major shall be automatically allowed to continue PG degree programme in the same Major without undergoing any additional procedures. Similarly, the colleges with approved PG programme and Ph.D. Research Centre in the same Major shall be automatically allowed to continue PG and Ph. D. Degree programme without undergoing any additional procedures.

h) The exit option at the end of one year of the Master's degree program will commence from AY 2024-25. Students, joining a two-year Master's degree program wef AY 2023-24, may opt for exit at the end of the first year and earn a PG Diploma.

i) The PG Diploma may be awarded to a student provided they have earned the requisite credits in one year including on-the-job training of 04 credits during summer break, after completion of the second semester of the first year in the respective Major Subject.

j) Students, opting for exit, will have the option to re-enter the programme from where they had left off, in the same or in a different higher education institution within Three years of exit and complete the PG degree programme within the stipulated maximum period of Five years from the date of admission to first year PG.

11. *The UGC Regulations, 2021* permit up to *40% of the total courses* being offered in a particular programme in a semester through the *Online Learning* Courses offered through the *SWAYAM* platform and/or other State Level Common Platforms which can be developed in due course with the participation of different Universities/ HEIs.

12. **After earning minimum 88 Credits** as given in above Table B from Semester I, II, III and IV cumulatively, the student shall be awarded PG **Degree (Master of -------( )).**

13 (a). Record of student's Performance cum Evaluation (containing attendance, concept knowledge, intellectual/ decision making ability, handling skill, sense of responsibility, cooperative/leadership quality, presentation/demonstration) related to OJT: *Internships/Apprenticeship, Field Project and Research Project, etc.* shall be maintained by the college/institute/university department

13 (b). For allotment of OJT: *Internships/Apprenticeship, Field Project and Research Project, etc.*, the college/ institute/university department shall follow standard operating procedures (SOP) with concerned college/institute/university department/organisation/ industry on the basis of Memorandum Of Understanding (MOU) /Letter of Intent and Joining letter. Further, for validation, progress records, Evaluation Sheet etc. shall be maintained by the college/institute/university department.

13 (c). For award of Credits to Co-curricular Courses: Health and wellness, Yoga Education, Sports and Fitness, Cultural Activities, NSS/NCC, Fine/Applied/Visual/Performing Arts, Academic activities like paper presentations in conferences, Aavishkar, start-ups, Hackathon, Quiz competitions, Article published, Participation in Summer school/ Winter School / Short term course, Field Visits, Study tours, Industrial Visits, online/offline Courses on Yoga (Yoga for IQ development, Yoga for Ego development, Yoga for Anger Management, Yoga for Eyesight Improvement, Yoga for Physical Stamina, Yoga for Stress Management, etc.); the college/ institute/university department should maintain a record of the student.

14. In the Scheme of Teaching, learning, Evaluation & Examination, credits are to be given with the maximum marks allotted to the Semester Examination in each paper for the theory and the practical of each of the Four examinations. Also Computation of SGPA and CGPA, letter grades and grade point, equivalence of class/ division to corresponding CGPA shall be indicated as given in Appendix A.

    For computation of SGPA and CGPA, grade points earned by the students in all Courses shall be considered except for OJT and Co-curricular courses.

15. The system of evaluation will be as follows:

    Theory papers, practicals and internal assessment will be evaluated in terms of marks. The marks will be added together and then converted into a grade and later a grade point average. Results will be declared for each semester and the final examination will give total grades and grade point average

16. Internal assessment marks (Theory) shall be based on two class tests. The distribution will be decided by the respective Board of Study. Internal assessment of practical/practicum/other relevant courses will be continuous and based on the performance of a student throughout the session along with satisfactory submission of the term work.

    There shall be a separate passing in Theory course so far as Internal and External Examinations are concerned. Student shall have to pass separately in the Internal Theory Examination as well as External (Theory) End-semester University Examination. The internal theory examination is based on two class tests. As 30 Marks are assigned for the Internal Theory Examination, student will have to score at least 40 % Marks, that is, 12 Marks for passing the theory course. Similarly, as 70 Marks are assigned for

the External end-semester university Theory Examination, Student will have to score at least 40 % Marks, that is, 28 Marks for passing the theory course.

In case, even after completing the requisite term-work, the student is unable to score minimum prescribed marks in Internal Theory Examination, that is, 12, he/she will be declared as Fail.

However, the concerned college/institute/university department shall give one more opportunity to such failure students. Thus, failure students will get another chance to clear their theory courses/subjects. The remedial re-examination of such failure students shall be conducted before the commencement of end-semester university examinations, so that the concerned college/institute/university department can submit the revised internal marks of such failure students to the university in due course of time as instructed by the university.

17. The **computation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)** of an examinee of *post graduate course* shall be as given in **Appendix A**.

18. Provisions of Ordinance No18/2001in respect of an Ordinance to provide grace marks for passing in a Head of passing and Improvement of Division (Higher Class) and getting Distinction in the subject and condonation of deficiency of marks in a subject shall apply to the examination under this Direction.
19. An unsuccessful examinee at any of the above examination shall carry college assessment marks (Sessional Marks) of the theory/Practical examination to the successive attempt at the examination. The examinee however can go for his/her college assessment marks in the subject or subjects in which he/she shall be examined for total marks comprising of theory and sessional together at his/her successive attempts.
20. As per Maharashtra Public Universities Act, 2016, Section 89 Chapter VIII, the results of every examination and evaluation conducted by the University will be declared within thirty days from the last date of examination for that particular course and in any case declare the results latest within forty five days. The names of the examinees passing the examination as a whole in the minimum prescribed period and obtaining the prescribed number of places in the CGPA shall be arranged in order of merit as provided in the examination in general Ordinance no. 6 provided that the merit list only be published in summer examination.
21. Subject to provisions in other ordinances, directions, no person shall be admitted to an examination under this Direction, if he / she has already passed the same examination of this university or an equivalent examination of any other University.
22. An examinee who has completed the term satisfactorily but fails to present himself/herself for the **examination shall be eligible for readmission to the same examination, on payment of fresh fees and** other fees as may be prescribed by the university from time to time.
23. A Student who could not complete a semester satisfactorily or did not keep term will be eligible for readmission to the same semester. However, readmission to the semester should be allowed only in regular session of that semester. In such case, the candidate will not be eligible to get admission in higher semester.

24. A candidate/student who has successfully completed all requisite courses approved by the university **and** earned minimum prescribed total credits for which he/she is admitted for the under graduate degree programme and accumulated the required credits for the program and who has put in the minimum residence time prescribed for each semester of the program shall be eligible to receive the degree.

25. Examinations will be conducted in Offline mode in accordance with Ordinance No.9. However, under special circumstances and in specific cases, those can be conducted in Online mode on the recommendations of Board of Examination & Evaluation and approval by the Academic Council.
26. Generally and preferably, College / Institute/Department internal assessment examinations and university examinations papers should be set from the Question Bank prepared by the university.
27. **Guidelines to Paper Setters** are provided in **Appendix B**, **Instructions to BOS** in **Appendix C**, **Guidelines for PG Research Project (Phase I and Phase II)** in **Appendix D, Glossary of Terms** in **Appendix E** and **Abbreviations** in **Appendix F**, respectively. Further, at the end of Appendix F, list of references employed to compose this document is also furnished.
28. **Power to modify and remove difficulties:-**

a) Notwithstanding anything contained in the foregoing, Hon'ble Vice-Chancellor in consultation with the Dean of the faculty shall have the power to issue directions or orders to remove any difficulty,

b) Nothing in the foregoing may be construed as limiting the power of the University to **amend,** modify or repeal any or all of the above.

29. **NEP working committee:-**

A) University Level :-

There shall be a NEP working committee in the University comprising of the following members

1.	**Vice-Chancellor**	**-**	**Chairman**
2.	Pro-Vice Chancellor	-	Member
3.	Deans of all faculties	-	Members
4.	Two Experts not below the rank of Professors nominated by the Honourable Vice-Chancellor	-	Member
5.	Concerned Head of the Department	-	Member
6.	D. R. (Academic)	-	Member-secretary

B. University Department Level :-

There shall be a NEP working committee in each university department comprising of the following members

Head of the University Department	-	Chairman
One Teacher nominated by Honourable Vice-Chancellor	-	Member

C. College Level

There shall be a NEP working committee in each affiliated college comprising of the following members

1.	Principal	-	Chairman
2.	HoDs of Teaching Departments of a College	-	Members
3.	IQAC Co-ordinator/Nodal Officer	-	Member- secretary

Powers and Duties of the NEP working committee

1. Committee shall take review of the Implementation of the NEP after completion of every Semester
2. The committee shall report to the university about difficulties faced during the implementation of the NEP to the university.
3. The committee should also consider the grievances of the students regarding the difficulties/disadvantages put to them if any during their studies under NEP.
4. For college level and university level, the committee will also be a grievance redressal committee for implementation of NEP, respectively.
5. The committee may consider any other matter in the interest of the students as far as the NEP is concerned.

Prof. (Dr.) Pramod Yeole
Date :- **In-charge Vice-Chancellor**

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Appendix- A

COMPUTATION OF SGPA AND CGPA AND AWARD OF DEGREE

Letter Grades and Grade Points:

i. Two methods -relative grading or absolute grading– have been in vogue for awarding grades in a course. The relative grading is based on the distribution (usually normal distribution) of marks obtained by all the students of the course and the grades are awarded based on a cut-off marks or percentile. Under the absolute grading, the marks are converted to grades based on pre-determined class intervals. Sant Gadge Baba Amravati University has implemented absolute grading. The UGC recommends a 10-point grading system with the following letter grades as given below:

1) Marks of each paper/subject shall be converted into grades as given in the Table No. 1.

Letter Grades and Grade Points

TABLE-1

Semester GPA/ Program CGPA Semester/Program	% of Marks	Alpha-Sign / Letter Grade Result
9.00-10.00	90.0-100	0 (Outstanding)
8.00-<9.00	80.0-<90.0	A+ (Excellent)
7.00-<8.00	70.0-<80.0	A (Very Good)
6.00-<7.00	60.0-<70	B+ (Good)
5.50-<6.00	55.0-<60.0	B (Above Average)
5.00-<5.50	50.0-<55.0	C (Average)
4.00-<5.00	40.0-<50.0	P (Pass)
Below 4.00	Below 40	F (Fail)
Ab (Absent)	-	Absent

A student obtaining Grade F or Ab shall be considered failed and will be required to reappear in the examination.

1. Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

Computation of SGPA:

Semester Grade Point Average (SGPA) is the weight age average of point obtained by a student in a semester and computed as follows.

SGPA (Si) = $\sum Ci \; x \; Gi \; / \sum Ci$

Where Ci denotes the number of credits of the i^{th} course and G_i denotes the grade points scored by a student in the i^{th} Course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

Computation of CGPA :

The CGPA is computed as follows

CGPA = $\sum (Ci \; x \; Si) \; / \sum Ci$

Where Si denotes the SGPA of the i^{th} Semester and C_i denotes the total number of credits in that Semester.

iii. **The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.**

2. Illustration of Computation of SGPA and CGPA and Format for Transcripts

i. Computation of SGPA and CGPA

***Illustration* for SGPA**

Course	**Credit**	**Grade letter**	**Grade point**	**Credit Point (Credit x Grade Point)**
Course 1	3	A	8	3 X 8 = 24
Course 2	4	B+	7	4 X 7 = 28
Course 3	3	B	6	3 X 6 = 18
Course 4	3	O	10	3 X 10 = 30
Course 5	3	C	5	3 X 5 = 15
Course 6	4	B	6	4 X 6 = 24
	20			139

Thus, SGPA =139/20 =6.95

***Illustration* for CGPA**

Semester 1	**Semester 2**	**Semester 3**	**Semester 4**
Credit : 20 SGPA:6.9	Credit : 22 SGPA:7.8	Credit : 25 SGPA: 5.6	Credit : 26 SGPA:6.0
Semester 5	**Semester 6**		
Credit :26 SGPA:6.3	Credit : 25 SGPA: 8.0		

Thus, CGPA = $\dfrac{20 \times 6.9 + 22 \times 7.8 + 25 \times 5.6 + 26 \times 6.0 + 26 \times 6.3 + 25 \times 8.0}{144} = 6.73$

ii. Transcript (Format): Based on the above recommendations on Letter grades, grade points and SGPA and CGPA, the University shall issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

3) Equivalence of the conventional division/class to the corresponding C.G.P.A. in final semester is in accordance with the following table

Equivalence of Class/Division to C.G.P.A.

Sr. No.	C.G.P.A.	Class/Division
1.	7.5 or more than 7.5	First Class with Distinction
2.	6.00 or more but less than or equal to 7.49	First Class
3.	5.50 or more but less than or equal to 5.99	Higher Second Class
4.	5.00 or more but less than or equal to 5.49	Second Class
5.	4.00 or more but less than or equal to 4.99	Pass

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Appendix -B

GUIDELINES TO PAPER SETTERS

1. Medium of Instructions and for examination shall be as prescribed by the BOS.
2. For the internal assessment & University end semester theory examinations, the paper should be set preferably from the question bank prepared by the university.

The question should be based on bloom's Taxonomy levels of (a) Remembering (b) Understanding (c) Application (d) Analysis (e) Evaluation and (f) Synthesis

Remember: -

Skill Demonstrated	Question Ques / Verbs for tests
• Ability to recall of information like, facts, conventions, definitions, jargon, technical terms, classifications, categories, and criteria ability to recall methodology and procedures, abstractions, principles and theories in the field • Knowledge of dates, events, places. • Mastery of subject matter	List, define, describe, state, recite, recall, identify, show, label, tabulate, quote, name, who, when where, etc.

Understand: -

Skill Demonstrated	Question Ques / Verbs for test
• Understanding information grasp • meaning • translate knowledge into new context • interpret facts, compare, contrast order, • group, infer causes predict consequences •	Describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss.

Apply: -

Skill Demonstrated	Question Ques / Verbs for test
•• Use information use methods, concepts, laws, theories in new • situations solve problems using required skills of knowledge • Demonstrating correct usage of method or procedure	Calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify.

Analysis: -

Skill Demonstrated	Question Ques / Verbs for test
• break down a complex problem into parts. Identify the relationships and interaction between • the different parts of complex problem.	Classify, outline, break down, categorize, analyse, diagram, illustrate, infer, select.

Evaluation (Judging)Analysis: -

Skill Demonstrated	Question Ques / Verbs for test
Evaluation questions encourage students to develop opinions and make value decisions about issues based on specific criteria	. Assess, Critique, Determine, Evaluate, Judge, Justify, Measure & Recommend **Examples of questions:** • "How could you select...?" • "How could you prove...?" • "How would you prioritize...?" • "What information would you use to support...?"

Synthesis (Creating)

Skill Demonstrated	Question Ques / Verbs for test

These questions encourage students create something new by using a combination of ideas from different sources to form a new whole	. Arrange, Combine, Create, Design, Develop Formulate, Integrate & Organize **Examples of questions:** • "What could be changed to improve...?" • "How would you test...?" • "What way would you design...?" • "What outcome would you predict for...?"

The Weightage of marks should be given preferably in the range of :

(a)	Remembering	10 to 20%
(b)	Understanding	30 to 45%
(c)	Application	30 to 45%
(d)	Analysis	10 to 20%
(e)	Evaluation (Judging)	10 to 15%
(f)	Synthesis (Creating)	10 to 15%
		100 to 160%

Types of Questions: -

a) Multiple Choice Questions (M.C.Q.) as and when applicable only: -

1. **Relevant content:** The question should be based on the relevant and important content.
2. **Application of knowledge, not only theory:** The question tests the application of knowledge, does not only test how the candidate recalls isolated theoretical facts.
3. **Focused questions and homogeneous answers:** The question focuses on one relevant aspect of the topic, all proposed answers belong to the same content dimension (i.e., diagnosis, or causes, or managements decisions etc.)
4. **Clear and unambiguous answer:** The best answer clearly stands out. Avoid "correct" answers with existing controversial doctrines.
5. **Appropriate level of difficulty (50% -90% correct answers):**
   Too difficult - even the best candidates need to guess
   Too easy - weak candidates get a "present"
6. **Unambiguous, concise and simple phrasing:** Avoid trick questions, double negatives.
   Use only common abbreviations, short sentences etc.
   Avoid imprecise qualifications (often, usually etc
7. **Avoid clues:**
   Clues can help candidates guess the correct answer. Examples are:

- One answer is much more detailed than the others
- Only one answer follows grammatically from the stem •Non logical order of the answers

General strategies

- **Test comprehension and critical thinking, not just recall**
  Ask MCQ so as to interpret facts, evaluate situations, explain cause and effect, make inferences, and predict results.
- **Use simple sentence structure and precise wording**
  Write test questions in a simple structure that is easy to understand. And try to be as accurate as possible in your word choices. Words can have many meanings depending on colloquial usage and context.
- **Use familiar language.**
  The question should use the same terminology that was used in the course. Avoid using unfamiliar expressions or foreign language terms, unless measuring knowledge of such language is one of the goals of the question. Students are likely to dismiss distracters with unfamiliar terms as incorrect.
- **Place most of the words in the question stem**
  While using a question stem, rather than an entire question, ensure that most of the words are in the stem. This way, the answer options can be short, making them less confusing and more legible.
- **Avoid giving verbal association clues from the stem in the key.**
  If the key uses words that are very similar to words found in the stem, students are more likely to pick it as the correct answer.
- **Avoid trick questions**
  Questions should be designed so that students who know the material can find the correct answer. Questions designed to lead students to an incorrect answer, through misleading phrasing or by emphasizing an otherwise unimportant detail of the solution, violate this principle.
- **Avoid negative wording**
  Students often fail to observe negative wording and it can confuse them. As a result, students who are familiar with

the material often make mistakes on negatively worded questions. In general, avoid having any negatives in the stem or the options. In the rare cases where you use negatives be sure to emphasize the key words by putting them in upper case, and bolding or underlining them.

- **Avoid double negatives**
  Don't use combinations of the words like not, no, nor, the -un prefix, etc in the same question.
- **Make the choices grammatically consistent with the stem.**
  Read the stem and each of the choices aloud to make sure that they are grammatically correct.
- **As far as possible, keep all answer choices of the same length.**
  This can be difficult to achieve, but expert test-takers can use answer length as a hint to the correct answer. Often the longest answer is the correct one. When one can't get all four answers to the same length, two short and two long can be used.
- **Place the choices in some meaningful order.**
  When possible, place the choices in numerical, chronological or conceptual order. A better structured question is easier to read and respond.
- **Randomly distribute the correct response.**
- The exam should have roughly the same number of correct answers that are a's, b's, c's and d's (assuming there are four choices per question)
- **Avoid using "all of the above"**
  If "all of the above " is an option and students know two of the options are correct, the answer must be "all of the above". If they know one is incorrect, the answer must not be "all of the above". A student may also read the first option, determine that it is correct, and be misled into choosing it without reading all of the options.
- **Avoid using "none of the above"**
  The option "none of the above" does not test whether the student knows the correct answer, but only that he/she knows the distracters aren't correct.
- **Refrain from using words such as always, never, all, or none.**
  Most students know that few things are universally true or false, so distracters with these words in them can often be easily dismissed.
- **Avoid overlapping choices**
  Make the alternatives mutually exclusive. It should never be the case that if one of the distracters is true, another distractor must be true as well.
- **Avoid questions of the form "Which of the following statements is correct?"**
  There is no clear question being asked, and the choices are often heterogeneous. Such questions are better presented in the form of True/ False questions.
- **Instruct students to select the "best answer" rather than the "correct answer"**
  By doing this, you acknowledge the fact that the distracters may have an element of truth to them and discourage arguments from students who may argue that their answer is correct as well.

Designing stems

- **Express the full problem in the stem.**

When creating the item, ask yourself if the students would be able to answer the question without looking at the options. This makes the purpose of the question clear.

- **Put all relevant material in the stem.**
  Do not repeat in each of the alternatives information that can be included in the stem. This makes options easier to read and understand, and makes it easier for students to answer the question quickly.
- **Eliminate excessive wording and irrelevant information from the stem.**
  Irrelevant information in the stem confuses students and leads them to waste time.

Designing alternatives

- **Limit the number of alternatives.**
  Use between three and five alternatives per question. Research shows that three choice items are about as effective as four or five-choice items, mainly because it is difficult to come up with plausible distracters.
- **Make sure there is only one best answer.**
  Avoid having two or more options that are correct, but where one is "more" correct than the others. The distracters should be incorrect answers to the question posed in the stem.
  Make the distracters appealing and plausible.

  All of the wrong answer choices should be completely reasonable. If the distracters are farfetched, students will too easily locate the correct answer, even if they have little knowledge. When testing for recognition of key terms and ideas keep the distractors similar in length and type of language as the correct solution. When testing conceptual understanding, distractors should represent common mistakes made by students.

. b) Short Answer (SA) descriptive ..marks as applicable)

A short answer question as the term indicate is one to which a brief answer can be given. When the students are required to give a brief and precisely defined response, the suitable type is the restricted response questions. The specific form of the answer should also be indicated, e.g., List, Define, Give reason etc.

While framing a question requiring short answer it should be ensured that:

1. The statement constituting the question is simple, clear and unambiguous.
2. The scope of the answer is limited.

3. The direction given in the question is clear.
4. The question constitutes a valid testing situation for the ability under consideration
5. The question is likely to be interpreted in the same way by teachers/ students/ examiners.
6. The question does not require further restructuring.

c) Long Answers (LA) descriptive…marks as applicable)

Long Answer (LA)

As the term indicates a long answer question is the one that needs a comprehensive explanation incorporating different ideas. The question should require the student to organise his ideas, choose the form of his answer and answer in his own words.

While framing a question requiring a long answer it should be ensured that:

a. The situation presented in the question is not new to most of the students.
b. The student will not be able to produce in the full, memorised answer.
c. The question involves the use of judgment on the part of student.
d. The answer can be completed within the limited time given.
e. The length and the scope of the answer is specified.

***

Appendix- C

Instruction to the BOS

Curriculum / syllabus shall be modified/prepared for the courses/subjects prescribed as in the NEP direction.

Each BOS shall create a separate basket of courses with respect to Elective Courses.

Students shall be given options to choose a course from the relevant Basket.

Each BOS shall design the syllabus for all courses along with the applicable baskets in relation to the PG programme.

The Programme Educational Objectives (PEOs), Program Outcomes (POs), Programme Specific Outcomes (PSOs) should be well defined.

For each course of the Program, learning objectives and learning outcomes: Course Outcomes (COs) should be defined carefully in accordance with Bloom's Taxonomy.

As a first step, determine the *Learning Objectives* for the entire course. List down the Course Outcomes. Then, use the COs to order the assessments, learning activities and interactions. Finally, use the COs to create learning units designed to support student achievement of these objectives.

Course Outcomes should be S.M.A.R.T.:

- **Specific;**
- **Measurable/Observable;**
- **Attainable for students within scheduled time;**
- **Relevant and results-oriented;**
- **Targeted to the learner and to the desired level of learning**

In general, Course Outcomes should have these four components:

- **A measurable verb;**
- **The important condition under which the performance is to occur;**
- **The criterion of acceptable performance;**
- **The time-frame for achievement.**
-

Course Outcomes should focus on these three domains:

- **Cognitive: knowledge, intellectual skills;**
- **Affective: attitudes, interests, feelings, values, adjustments;**
- **Psychomotor: motor and manipulations skills.**

A comprehensive note on employability potential of the program should be added separately at the Preface/Preamble of the Program Curriculum

Bloom's hierarchy takes students through a process of synthesizing information that allows them to think critically. Students start with a piece of information and are motivated to ask questions and seek out answers.

Not only does Bloom's Taxonomy help teachers understand the process of learning, but it also provides more concrete guidance on how to create effective learning objectives.

Table 1. Bloom's Taxonomy

Bloom's Level	**Key Verbs (keywords)**	**Example Learning Objective**
Create	design, formulate, build, invent, create, compose, generate, derive, modify, develop.	*By the end of this lesson, the student will be able to design an original homework problem dealing with the principle of conservation of energy.*
Evaluate	choose, support, relate, determine, defend, judge, grade, compare, contrast, argue, justify, support, convince, select, evaluate.	By the end of this lesson, the student will be able to determine whether using conservation of energy or conservation of momentum would be more appropriate for solving a dynamics problem.
Analyze	classify, break down, categorize, analyze, diagram, illustrate, criticize, simplify, associate.	*By the end of this lesson, the student will be able to* differentiate between potential and kinetic energy.
Apply	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, perform, present.	*By the end of this lesson, the student will be able to* calculate the kinetic energy of a projectile.
Understand	describe, explain, paraphrase, restate, give original examples of, summarize, contrast, interpret, discuss.	*By the end of this lesson, the student will be able to* describe Newton's three laws of motion to in her/his own words
Remember	list, recite, outline, define, name, match, quote, recall, identify, label, recognize.	*By the end of this lesson, the student will be able to* recite Newton's three laws of motion.

This also reminds teachers that learning is an active process, stressing the importance of including measurable verbs in the objectives. And the clear structure of the taxonomy itself emphasizes the importance of keeping learning objectives clear and

concise as opposed to vague and abstract.

OBE (Outcome Based Education) starts with a clear statement on what Knowledge, Skills and Attitudes, the Student will be able to demonstrate as having acquired on successful completion of a program of study. These should be clearly measurable.

Program Educational Objectives (PEOs):

Program educational objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.

GRADUATE ATTRIBUTES

The graduate attributes reflect the particular quality and feature or characteristics of an individual, including the knowledge, skills, attitudes and values that are expected to be acquired by a graduate through studies at the higher education institution (HEI) such as a college or university. The graduate attributes include capabilities that help strengthen one's abilities for widening current knowledge base and skills, gaining new knowledge and skills, undertaking future studies, performing well in a chosen career and playing a constructive role as a responsible citizen in the society. The graduate attributes define the characteristics of a student's university degree programme(s), and describe a set of characteristics/competencies that are transferable beyond study of a particular subject area and programme contexts in which they have been developed. Graduate attributes are fostered through meaningful learning experiences made available through the curriculum, the total college/university experiences and a process of critical and reflective thinking.

Some of the characteristic attributes that a graduate should demonstrate are as follows:

- ***Disciplinary knowledge:*** Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
- ***Communication Skills:*** Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one's views and express herself/himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups.
- ***Critical thinking:*** Capability to apply analytic thought to a body of knowledge; analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development.
- ***Problem solving:*** Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations.
- ***Analytical reasoning:*** Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyse and synthesise data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints.
- ***Research-related skills:*** A sense of inquiry and capability for asking relevant/appropriate questions, problematising, synthesising and articulating; Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the results of an experiment or investigation.
- ***Cooperation/Team work:*** Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.
- ***Scientific reasoning:*** Ability to analyse, interpret and draw conclusions from quantitative/qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective.
- ***Reflective thinking:*** Critical sensibility to lived experiences, with self awareness and reflexivity of both self and society.
- ***Information/digital literacy*** :Capability to use ICT in a variety of learning situations, demonstrate ability to access,

evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.

- ***Self-directed learning:*** Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion.
- ***Multicultural competence:*** Possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully with diverse groups.
- ***Moral and ethical awareness/reasoning:*** Ability to embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demonstrating the ability to identify ethical issues related to one's work, avoid unethical behaviour such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights; appreciating environmental and sustainability issues; and adopting objective, unbiased and truthful actions in all aspects of work.
- ***Leadership readiness/qualities:*** Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.
- ***Lifelong learning:*** Ability to acquire knowledge and skills, including „learning how to learn", that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/reskilling.

The Learning Outcomes for PG Degree as per NHEQF, would be as follows

i) have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with the first cycle, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context;

ii) can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;

iii) have the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information, and that includes reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments;

iv) can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;

v) have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

Program Outcomes (POs):
Program outcomes: Describe what students are expected to know and would be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program.
Program outcomes basically describe knowledge, skills and behavior of students as they progress through the program as well as by the time of graduation and must reflect all GAs (Graduate Attributes).

Program Specific Outcomes (PSOs):
Program Specific Outcomes are statements that describe what the graduates of a specific program should be able to do.

Course Outcomes (COs):
Statements indicating what a student can do after the successful completion of a course. Every Course leads to some Course Outcomes. The CO statements are defined by considering the course content covered in each module of a course. For every course there may be 5 or 6 COs. The keywords used to define COs are based on Bloom's Taxonomy.

Typically 4-6 CO s should be identified /Course. COs are major domain specific outcomes written using action verbs which are specific, measurable and can be demonstrated by students on completion of the course. Course Outcomes should aim to develop higher order skills in each Domain of Learning. Evaluation, Synthesis, Analysis are typical examples in Cognitive Domain. Outcomes which can be mastered in a significantly lower no. of lessons are likely to be too trivial and more suitable for Unit or Module Outcomes. Attainment of each CO should lead to attainment of one or more PO s.

For the internal assessment & University end semester theory examinations, the paper should be set preferably from question bank. Hence question bank should be prepared.
Also Board of Studies shall prepare a question bank of MCQs from units of all subjects.

Curriculum/syllabus of concerned DSC, DSE and Research Methodology and IPR shall be prepared by the respective BOS as

prescribed in the NEP-v23 scheme.

For all such courses the content of the syllabus shall be divided equally into prescribed number of different Units as shown in the following **Table**. The assignment of the lecture hours to complete the unit should be based on the volume and/or complexity of its content.

Design of a Syllabus for a course involves creating units. Contents of the Course must be divided in to digestible pieces, called units. For creating the units, the following steps may be followed:

1. Identify and make a list of your course units, in accordance with
   - content---specific topics or unit specific
   - time frame/Lecture Hours
   - steps in a process
2. Sequence your units appropriately within the content section of the syllabus (Ex. Unit I, Unit II, Unit III, …etc.).
3. Indicate the estimated /expected number of lecture hours required to complete at the end of each unit

Table: Organization of Syllabus for Theory Courses

Theory Course	*Min. Lecture Hours per Semester	Number of Units in the Syllabus	Total Marks	Illustrative Distribution
1 Credit if applicable	*15 Hours	02**	25 (No University Exam)	Unit I (7 H), Unit II (8 H)
2 Credit if applicable	*30 Hours	04**	50 No (University Exam)	Unit I (7 H), Unit II (7 H), Unit III (8 H), Unit IV (8 H)
3 Credits	*45 Hours	06**	100	Unit I (7 H), Unit II (7 H), Unit III (8 H), Unit IV (8 H), Unit V (8 H), Unit VI (7 H)
4 Credits	*60 Hours	06**	100	Each Unit (10 H) or Number of H may vary with respect to the volume/complexity of the unit
5 Credits if applicable	*75 Hours	06**	100	Unit I (12 H), Unit II (12 H), Unit III (13 H), Unit IV (13 H), Unit V (13 H), Unit VI (12 H)

Note 1: * Calculations are based with the presumption that a semester is comprised of at least 15 week. College/Institution/University Department should try to engage the students for maximum possible number of weeks to the best of their abilities, in accordance with the prevalent operative academic calendar notified by the university in action. As Number of weeks in a semester may be increased up to 18, the figures shown in the above table shall change accordingly. [e.g., 1 Credit: 18 H, 2 Credits: 36 H, 3 Credits: 54 H, 4 Credits: 72 H, 5 Credits: 90 H, …,etc.].

Note 2: **A Faculty/concerned BOS may decide the precise number of Units in the syllabus.

Note 3: Any Theory Course of 2 or Less Credits should have only Internal Assessment and such theory course won't have University Examination.

In the above Table, H denotes Number of Lecture Hours Required to complete the Unit after ensuring accomplishment of the listed course outcome prescribed for the said unit.

For Practical Courses

Table: Marks distribution for practical courses

Practical Course	Number of Hours per week per batch	Total Marks
1 Credit	02 Hours	50 (Internal 25 + External 25)
2 Credits	04 Hours	100 (Internal 50 + External 50)
3 Credits	06 Hours	100 (Internal 50 + External 50)
4 Credits	08 Hours	100 (Internal 50 + External 50)

SPECIAL Instructions to BOS for COURSE DSC-I.3

" Contemporary Applied Technological Advancements in Research relevant/supportive to Major "

Or

Recent/Contemporary/Advanced Trends in Major

Each BOS shall design the syllabus for the following Discipline or Department Specific Course/subject with respect to the Major, in which, P.G. Degree is going to be awarded. The syllabus has to be designed in order to attain the following course objective as well as listed Course Outcomes.

COURSE/SUBJECT:

Contemporary Applied Technological Advancements in Research relevant/supportive to Major

Or

Recent/Contemporary/Advanced Trends in Major

Or

Any other suitable title as approved by the concerned BOS

PRIMARY OBJECTIVE *of this course is to prepare the students to undertake the Research Project in the 3rd and 4th semester as well as to prepare them to be research scholars, however, this course is altogether different from the Research Methodology and IPR*

COURSE OUTCOMES (COS):

Upon completion of this course successfully, students would be able to

Learn the most advanced and recent developments in Major Courses and also courses related/allied to the Major of the PG Programme.

THE COURSE CONTENT could comprise an *advanced topic* **OR** the *fusion of different advanced topics* related or in support to the Major, which could not be covered in Discipline (Department) Specific Courses and Discipline (Department) Specific Elective Courses because of imposed constraints of the scheme in relation to distribution of credits amongst different types of courses.

Further, the course content should be updated biannually by the concerned BOS, so as to keep abreast of the Contemporary Applied Technological Advancements in Research relevant/supportive to Major.

If necessary, the BOS may change the nomenclature of this course while emphasizing the aforementioned theme or strategy of course-design.

Upon completion of such a course successfully, students would be able to

Review critically *Non-Patent literature* published in journals listed in UGC-CARE Group-I and Group-II along with *Patent Literature* (both Indian and foreign, if applicable) in Major *till date,* Identify Research Gaps in prior reported work in relation/supportive to Major, Learn Advanced Technology Tools: Hardware/Software /Resources/Facilities available for Researchers in relation to Major/supportive to Major, Understand concept of sustainability in Research in Major (if applicable), Plan to undertake research in Major and design the problem statement along with Research Objectives, Study to apply technological advancements such that the outcome of the research shall result into Product Patent/Process Patent/Design Patent/ Invention or discovery / High quality peer-reviewed refereed Publications in Journals listed in globally recognized databases (or UGC-CARE Group-I / Group-II)

LABORATORY/PRACTICAL/PRACTICUM shall be based on the above Course so as to provide hands-on training to the students. Accordingly, appropriate activities/tasks should be assigned to the students with a view to comply with the aforementioned course outcomes.

APPENDIX D

Guidelines for PG Research Project (Phase I and Phase II)

The Research proposal will be evaluated only at college / department level RAC (Research Advisory Committee) and there should be no need to go to the RRC at the University level.

The department/ college may put up the list of Research Projects (Titles) on the website of concerned RAC/College/Department in public domain for transparency and information of stakeholders and concerned people.

All students shall adhere to the following reference guidelines in order to select, pursue and execute Research Project during the third and fourth semester of PG Programme. Further, they should adopt the following guidelines for preparing and submitting the Report/Thesis of the Research Project. The examiners/evaluators are requested to assess the Research Project Thesis on the basis of the following parameters, as applicable.

1. **Research Project Title**

Title should be *clear* and *concise* with *appropriate variables* (shows accurately the *subject/focus area* and *scope of study* through important "*keywords*" from the subject

The following parameters can be used to help formulate a suitable research project title:

1. The purpose of the research
2. The type of the research
3. The methods used

The initial aim of a title is to capture the reader's attention and to draw his or her attention to the research problem being investigated.

Title of Research project should have several characteristics as follows

- Avoid using abbreviations.
- Use words that create a positive impression and stimulate reader interest.
- Use current nomenclature from the field of study.
- Identify key variables, both dependent and independent.
- Suggest a relationship between variables which supports the major hypothesis.
- Titles are usually in the form of a phrase, but can also be in the form of a question.
- Use correct grammar and capitalization with all first words and last words capitalized, including the first word of a subtitle. All nouns, pronouns, verbs, adjectives, and adverbs that appear between the first and last words of the title are also capitalized.

Simply put, a student must point out several things: ***(1)*** *what;* ***(2)*** *how; and ideally,* ***(3)*** *why* in a Title of the research project.

2. **Table of Contents, Chapterization Scheme of the Research Project Thesis, List of Tables, List of Figures**
3. **Research Project Summary (250 words) followed by Keywords**
4. **Introduction**

Origin of the proposal, Motivation for undertaking research, brief overview explaining the background and importance of the study

5. **Statement of the Problem**

Specifically what the researcher wants to know

6. **Purpose/Significance/Importance of the Proposed Research in the context of the current status**

Topic is critical in discipline. Aim of the proposed work is Unexplored/underexplored Importance/justification of the proposed work. What the researcher hopes to achieve by conducting the study. As part of the purpose of the study, there should be justification for conducting the project. This section should exhibit a clear understanding of what makes your study significant and why it should be conducted.

7. **Definition of Terms, if applicable –** clarification of any terminology in the study/research that may not be commonly known; provides a similar interpretation for all readers of the study

8. **Delimitations, Limitations, and Assumptions** (if applicable)

A brief statement identifying the delimitations, limitations, and assumptions associated with the study/research should be provided.
Delimitations – factors that were controlled by the researcher

Limitations – factors that were not under the control of the researcher
Assumptions – factors that the researcher assumes were taken into consideration.

9. **Critical Review of Non-Patent and Patent Literature till date**

The student should provide a breakdown of sub-topics influencing the processes of the research project. Each sub-topic should contain a thorough examination of the literature that influences or is representative of current research on that subtopic. The literature review should collectively support the process and purpose of the study. A theoretical framework as applicable to the field of study may be included here.

Include Journal Articles (non-patent literature) and Patents (Indian and International) literature (granted/published), if applicable. For Patent literature, student may use, for example, Google Patents Advanced Search.

Student shall only include reported research work published in the Journals, which are listed in UGC CARE List Group-I and UGC CARE List Group-II.

10. **Theoretical Framework, Research Questions, Hypothesis, elements (As applicable to the Research)**

Hypothesis must be Clear, corresponding to objectives and testable. Derived from residue of Review of Literature

11. **Problem Definition (Formulation)**

12. **Research Objectives**

(Align Research Objectives with Research Gaps, Research Questions, etc.)

(Research Objectives must be *specific, measurable, achievable, realistic, time constrained*) **[S.M.A.R.T.]**

13. **Resources/facilities accessible to execute the project**

14. **Research Methodology**

This section should clearly present each aspect of the process by which the study/research will be completed. Every attempt should be made to leave no question as to the procedures used to complete the study. Proper scientific methods should be used for this aspect of the study/research.

Methods, Subjects, Instrumentation, Procedures, etc. (if relevant and applicable)

Ensure that the research methodologies are appropriate for answering the research questions and that they are feasible within the available resources and time frame.

15. **Feasibility Study of the Proposed Research Project Plan** for planning and fruitful execution of Research Project

16. **Describe Research Design (as applicable to the specific type of Research)**

Correlational	Causal	Comparative	interviews
Quasi-Experimental	Experimental/ Laboratory	Simulation	surveys
Empirical	Meta-analytic	analytic	Participant observations
Applied	Basic/Fundamental	Qualitative/Creative	Oral history
Quantitative	Classification	Field	Archival research
Comparative	Source Criticism	Focus Groups	Case studies

(or **any other type of research not covered above)**

17. **Sampling (if applicable)** – describe the aspects of the cases on which data collection and analysis will focus (where relevant), Indicate how access to the study population will be achieved
18. **Variables** (As applicable to the Research Project with justification) – describe aspects of the cases on which data collection and analysis will focus (where relevant)

Dependent	Quantitative	Latent
Independent	Qualitative (categorical)	Continuous in time
Control	Observable	Discrete time

19. **Methods of Data Collection (as applicable)**
20. **Organization of Work Elements**

provide a timeline listing the order for all the major steps of the study and indicate the approximate amount of time needed for each step

(Time schedule of activities giving major milestones, Time schedule of activities through Bar diagram)

21. ***Data Analysis Procedures and Interpretation, if applicable:*** Outline the data analysis methods (Qualitative as well as Quantitative) and how the results will be interpreted. Verify that the methods are appropriate for the data to be collected.

22. ***Results/Findings:*** Evaluate the presentation of results, including data tables, graphs, and figures. Verify if the

results address the research questions, properly and if they are supported by the data collected.

23. ***Conclusions, suggestions/recommendations:*** List the conclusions drawn from the study and whether they are supported by the evidence presented in the project report.

24. ***Discussion:*** Check the interpretation of the results and the extent to which the findings align with the stated objectives. The discussion should include critical analysis and potential limitations.

25. ***Future Research Directions/ Recommendations for further Research***

Provide recommendations to further research on this topic or how parts of the study/research undertaken could be improved upon. If researcher found as a result of his/her study that another topic should be looked at in order to offer more insight into this topic, then he/she should suggest that at this time. It is important that this part of the conclusion chapter incorporates the implications of the findings drawn from the Research Project in terms of other research in the specific area of study, investigated by the researcher.

26. **Research Outcomes with beneficiaries**

Outcome of research should result into Product Patent/ Process Patent/Design Patent and/or

High quality Publications in Journals listed in UGC CARE List Group-I and UGC CARE List Group-II.

(Also list the possible beneficiaries of the research)

The outcome of the conducted research in PG programme is likely to be patented and/or publishable in the journals indexed in UGC CARE List Group-I and UGC CARE List Group-II.

27. **Sustainability in Research Project (if applicable, please specify)**

- Human sustainability
- Social sustainability
- Economic sustainability
- Environmental sustainability (issues related to energy, Carbon footprint assessment, climate and biodiversity)
- Life Cycle Assessment (LCA). LCA enables the assessment of environmental impacts of a service or product by taking into account all the stages of its life cycle according to different criteria, including but not limited to carbon dioxide CO_2 measurement.
- Reproducibility of the protocols; results; research materials: product, information, data, software, Codes, etc.
- Use of Green artificial intelligence, which seeks to reconcile powerful computing with environment friendly research
- Adoption of Eco-friendly practices

28. **Originality/Novelty of the project (Justify one or more of the following as applicable to the Research work)**

a) Incremental improvement	*b)* Devise New investigative methods/analysis/synthesis
c) Substantial/radical improvement	*d)* Devise new system/model/product/process/ machine/article of manufacture/composition of matter/new and useful improvement of any of these
e) Discover new information/model/system	*f)* Apply New Methods/Approach/Techniques/ Algorithms
g) Provide new *Technical Solution* to a Problem	*h)* Create New Interpretations
i) Modify existing theories/systems/models/Algorithms/Interpretations	*j)* Provide additional support for existing theories/models/interpretations
k) Analyze *phenomena*/*Results of Research* in new ways	*l)* Disprove the existing theories/models/interpretation
m) Generation of New Data	*n)* Devise new original and ornamental design for an article of manufacture
o) Invention or discovery and reproduction of any distinct and new variety of plant (Botany)	*p)* Any other aspect not covered above

29. **Plagiarism/Similarity Check**

This requires that the researcher's work:
• Provides a full and complete representation of any scholarly findings
• Credits the contributions of other researchers, colleagues, co-workers, etc.
• Respects diversity of opinion

Misconduct in research and writing is defined as
The fabrication, falsification, plagiarism, or other practices that seriously deviate from those commonly accepted within the scientific, artistic, and academic professional communities. Plagiarism involves the intentional appropriation of another's work, including ideas or phrasing of words, without crediting the source.

Please include the similarity analysis report or plagiarism check report of the Entire Research Project by Urkund (or Turnitin or iThenticate or any other software available at the Knowledge Resource Centre of Sant Gadge Baba Amravati University, Amravati). This will ensure the originality of the Research work. **UGC**'s new anti-plagiarism policy allows up to 10% content similarity. With similarity above it, students will be asked to revise and resubmit the synopsis.

[Reference: University Grants Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018.]

30. Prior Approval from the IAEC registered with the CPCSEA (The Committee for Control and Supervision of Experiments on Animals) to be submitted to the Ph.D. Cell along with the Research Synopsis (If Applicable to the Research Work)

As per the "Breeding of and Experiments on Animals (Control and Supervision) Rules, 1998", an **Institutional Animal Ethics Committee (IAEC)** is needed for control and supervision of experiments on animals performed in the Institute/Research Laboratory. The IAEC must be registered with the CPCSEA.

Prior approval of the IAEC is mandatory for all types of research proposals involving small animal experimentation before the start of the study. This Committee also monitors research throughout the study and after completion of the study through periodic reports besides regular visits to the research faculty animal house and laboratories where the experiments are conducted. This also ensures compliance with all regulatory requirements, rules, guidelines and laws related to animal experiments.

A copy of the prior approval of the **IAEC**, which is already registered with the **CPCSEA** must be enclosed along with the Research Synopsis

31. References/Bibliography

Credibility of Sources of literature: Journals used in the literature review must be indexed in the UGC- CARE Group-II or UGC-CARE List Group-I.

References/ bibliographies must be listed in **uniform standard style** (APA/ MLA/Chicago/IEEE/MHRA or Harvard)

Ensure that all references are properly referred to in the running text and **Seminal Research Articles** are included in the references.

32. Appendices if necessary

Glossary of Terms

APPENDIX -E

Academic Credit: An academic credit is a unit by which the course work (theory/ practical/ training) is measured. Each course may be allotted credits in proportion to the time expected to be devoted by the student for that course. Thus, it determines the number of hours of instructions required per week. One credit means the standard methodology of calculating one hour of theory or one hour of tutorial or two hours of laboratory work or one week of internship per week for a duration of a semester (13-15 weeks) resulting in the award of one credit; which is awarded by a higher educational institution on which these regulations apply.

Academic Bank of Credits (ABC): ABC is an academic service mechanism as a digital/virtual/online entity established and managed by MoE/UGC to facilitate students to become its academic account holders and paving the way for seamless student mobility. between or within degree-granting Higher Education Institutions (HEis) through a formal system of credit recognition, credit accumulation, credit transfers and credit redemption to promote distributed and flexible teaching-learning.

Academic Year: Two consecutive (one odd + one even) semesters constitute one academic year.

Assessment: It is the process of collecting, recording, scoring, describing and interpreting information about learning

Academic Flexibility: It is the provision for innovative and interchangeable curricular structures to enable creative combinations of Courses/Programmes in Disciplines of study leading to Degree/Diploma/PG Diploma/Certificate of Study offering multiple entry and multiple exit facilities in tune with National Education Policy-2020, while removing the rigid curricular boundaries and creating new possibilities of life-long learning.

Affiliated College: It implies any higher education institution approved by the affiliating university on the basis of the stipulated norms and guidelines by virtue of which it provides for a course/programme of study for obtaining any qualification from a university.

Autonomous College: It means any institution, whether known as such or by any other name accorded with autonomous status by the UGC upon the recommendations of the affiliating university and the State Government concerned, by virtue of which it provides for a course/programme of study with academic and innovation flexibility for obtaining any qualification from a university and which, in accordance with the Rules and Regulations of such university, is recognized as competent to provide for such course/programme of study and present students undergoing such course/programme of study for the examination leading to the award of such qualification.

Choice Based Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses (core major, electives, minor, soft skill courses etc.)

Code: Each course shall bear a distinguishing code (three letters and three digits) that identifies the discipline from which it is being offered.

Conventional Mode of Learning: It means a mode of providing learning opportunities through face to face interaction between the teacher and learner in regular class room environment but does not exclude supplementary instructions if any for the learner through use of online.

Core or Major Course: A course, which should compulsorily be studied by the student as a requirement of core or major subject is termed as a Core Course.

Course: A basic unit of education and/or training. It means a paper which is taught for at least one semester as a part of a subject and is a component of a program. All courses need not carry the same weightage. A collection of courses forms a program of study.

Credit Point: It is the product of grade point and number of credits for a course.

Cumulative Grade Point Average (CGPA): Weighted average of the grade points obtained in all courses registered by the student across semesters.

Elective Course: Generally, a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.

Evaluation: It is the process of making judgments based on evidences and interpretations gathered through examination and assessment and on the basis of agreed upon criteria.

Foreign Higher Educational Institution: It represents a Higher Educational Institution duly established or incorporated or recognised in a foreign country and offering academic and research programmes at the undergraduate and/or higher levels.

Generic Elective (GE) or Open Elective (OE) Course: An elective course chosen generally from an unrelated discipline/subject, with an intention to seek multidisciplinary exposure is called a Generic Elective.

Grade Point: Numeric weightage attached to each letter grade.

Grade Point Average (GPA): A system of calculating academic achievement based on an average, calculated by multiplying the numerical grade point received in each course by the number of credits.

Graduate Attributes (GAs): It is a set of individually assessable outcomes that are indicative of the graduate's potential to acquire competencies in that programme.

Higher Education Institutions: The Higher Education Institutions (HEis) who are empowered to award degrees by themselves or through their affiliating universities m accordance with Section 22 of the UGC Act, 1956.

Lateral Entry: Lateral entry or admission is granted to those students who have exit after award of Certification, Diploma, or a Basic Bachelor's Degree and are eligible for and desirous of re-entering into the second year/ third year/ fourth year, respectively of same four year multidisciplinary degree programme at any ABC registered HEI within stipulated/ permissible period of years as decided by Statutory Councils of that HEI. Lateral entry is also open to those students, if he/she has already successfully completed a multidisciplinary four year first degree programme and is desirous of and academically capable of pursuing another multidisciplinary four year first degree programme m an allied subject.

Learning Management System (LMS): It means a system to keep track of delivery of e-Leaming Programmes, learner's engagement, assessment, results, reporting and other related details in one centralized location

Learning Outcome Based Education (LOBE): Adherence to student-centric learning approach to measure student's performance based on pre-determined set of outcomes.

Letter Grade: Index of performance resulting from the transformation of actual marks obtained by a student in a course.

Major Courses: The discipline in which the student shall pursue major study in his/her Undergraduate/Master's Programme.

Proctored Examination: It means the examination conducted under the supervision of approved person or technology enabled proctoring which ensures the identity of the test taker and the integrity of the test taking environment, either in pen-paper mode or in computer based testing mode or in full-fledged online mode, as may be permissible.

Programme: Programme /Programme of study means a higher education programme pursued for a degree specified by the Commission under Section 22 (3) of the UGC Act. It also refers to a collection of courses in which a student enrolls and which contributes to meeting the requirements for the awarding of one or more Certificates/ Diplomas/ Degrees.

Programme Education Objectives (PEOs): PEOs are broad statements that describes what graduates are expected to attend within few years of graduation.

Programme Learning Outcomes (PLOs): They represent the knowledge, skills and attitudes a student should attain at the end of the programme.

Qualifications: Qualifications are formal 'awards' such as a certificate, diploma or a degree. Qualifications are awarded by a competent authority such as a college or university in recognition of the attainment by students of the expected learning outcomes on the successful completion of a particular programme of study. Qualifications can also signify the competence to follow an occupational practice.

Research Project/ Dissertation: Project work is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. The student undertakes research in specific areas of his Major/ Core Subject with an advisory support by a teacher/faculty member.

Rubric (Assessment Rubric): A rubric for assessment, also called a scoring guide, is a tool used to interpret and grade students on any kind of work against criteria and standards.

Semester Grade Point Average (SGPA): Performance of a student in a given semester.

APPENDIX -F

Abbreviations

ABC	Academic Bank of Credits
AICTE	All India Council for Technical Education
AISHE	All India Survey of Higher Education
AIU	Association of Indian Universities
B.A.	Bachelor of Arts
B.Com.	Bachelor of Commerce
B.Ed.	Bachelor of Education
B.Sc.	Bachelor of Science
B.Voc.	Bachelor of Vocation
BCI	Bar Council of India
BLA	Bachelor of Liberal Arts
BLE	Bachelor of Liberal Education
BoD	Board of Deans
BoS	Board of Studies
BoG	Board of Governors
CAD/CAM	Computer-Aided Design/ Computer-Aided Manufacturing
CBCS	Choice Based Credit System
CDAC	Centre for Development of Advanced Computing
CEP	Continuing Education Programme
CIET	Central Institute of Educational Technology
CSIR	Council of Scientific and Industrial Research
CUET	Common University Entrance Test
CSR	Corporate Social Responsibility
CSTT	Commission for Scientific and Technical Terminology
CTE	College of Teacher Education
cu	Central Universities
DAE	Department of Atomic Energy
DARE	Department of Agricultural Research and Education
DBT	Department of Biotechnology
DSC	Department/ Subject Specific Course

DSE	Department/Subject Specific Elective
DST	Department of Science and Technology
DTE	Department/ Directorate of Technical Education
EVLSC	Professional Ethics, Value Education and Life Skills courses
FSC	Faculty/ Discipline Specific Course
FSE	Faculty/ Discipline Specific Electives
FOSSEE	Free and Open-Source Software in Education
GA	Graded Accreditation
GCCs	Global Capability Centers
GEC	General Education Council
GEs	Generic Electives
GER	Gross Enrolment Ratio
GoI	Government of India
HBCSE	Homi Bhabha Centre for Science Education
HEI	Higher Education Institutions
HRDC	Human Resource Development Centre
IAF	Institutional Accreditation Framework
IASE	Institute of Advanced Studies in Education
ICAR	Indian Council of Agricultural Research
ICT	Information and Communication Technology
IDP	Institutional Development Plan
IIEC	India International Education Centre
IIT	Indian Institute of Technology
IKS	Indian Knowledge System
INI	Institutions of National Importance
INSA	Indian National Science Academy
ITI	Industrial Training Institute
IUC	Inter-University Consortium
MERU	Multidisciplinary Education and Research Universities
MoE	Ministry of Education
MOOC	Massive Open Online Course
MoU	Memorandum of Understanding
MSDE	Ministry of Skill Development and Entrepreneurship
MSRIC	Maharashtra State Research and Innovation Council
MSME	Micro, Small and Medium Enterprises
NAAC	National Assessment and Accreditation Council
NASSCOM	National Association of Software and Services Companies
NCC	National Cadet Corps
NCERT	National Council of Educational Research and Training
NCF	National Curriculum Framework
NCrF	National Credit Framework
NCTE	National Council for Teacher Education
NCVET	National Council for Vocational Education and Training
NCVIE	National Committee for the Integration of Vocational Education
NEET	National Eligibility cum Entrance Test
NETF	National Educational Technology Forum
NGO	Non Governmental Organization
NHEQF	National Higher Education Qualifications Framework
NHERA	National Higher Education Regulatory Authority
NIEPA	National Institute of Educational Planning and Administration
NIOS	National Institute of Open Schooling

NIT	National Institutes of Technology
NITI	Aayog National Institution for Transforming India
NMEICT	National Mission on Education through ICT
NPSDE	National Policy on Skills Development and Entrepreneurship
NQR	National Qualifications Register
NRED	National Repository of Educational Data
NRF	National Research Foundation
NROER	National Repository of Open Educational Resources
NSDA	National Skill Development Agency
NSDC	National Skill Development Corporation

NSQF	National Skills Qualifications Framework
NSS	National Service Scheme
NTA	National Testing Agency
ODL	Open and Distance Leaming
OEs	Open Electives
OER	Open Educational Resources
PG	Postgraduate
PSSB	Professional Standard Setting Body
PTO	Patent and Trademark Office
RCI	Rehabilitation Council of India
RHEI	Registered Higher Education Institutions
RSA	Rashtriya Shiksha Aayog
RUSA	Rashtriya Uchchtar Shiksha Abhiyan
	SC Scheduled Caste(s)
SAMVAY	Skill Assessment Matrix for Vocational Advancement of Youth
SCERT	State Council of Educational Research and Training
SDG	Sustainable Development Goals
SEC	State Education Commission
SEZ	Special Education Zone·
SHEC	State Higher Education Council
SKP	Skill Knowledge Provider
SSC	School Specific Course
SSE	School Specific Electives
SSD	Ms State Skill Development Mission
SSRA	State School Regulatory Authority
STEAM	Science, Technology, Engineering, Art & Design, and Mathematics
STEM	Science, Technology, Engineering, and Mathematics
SVE	School of Vocational Education
SWAYAM	Study Webs of Active Learning for Young Aspiring Minds
TEI	Teacher Education Institution
U-DISE	Unified District Information System for Education
UG	Undergraduate
UGC	University Grants Commission
UHV	Universal human values
VESB	Vocational Education Skills Board

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