

Course title: Major Project				
Course code: NRE 104	No. of credits: 15	L-T-P: 0-0-420	Learning hours: 15 weeks	
Pre-requisite course code and title (if any):				
Department: Department of Energy and Environment				
Course coordinator(s):			Course instructor(s):	
Contact details:				
Course type: Core			Course offered in: Fourth semester	
Course description				
<p>It is an opportunity for the students to apply knowledge and skillsets, which they have obtained during classroom teaching, practical course work and field visits, spread over three semesters. The major project is conceptualized to independently think and engage in research to provide sustainable solutions based on learning during the master's degree course work. It requires a deeper understanding of the development process, the driving factors, and the inter-linkages within the earth system science, climate change issues, sustainable development challenges, renewable energy, community engagement, legal frameworks, among others. The students are required to hypothesize a research problem and carry out detailed and substantial amount work with their original thoughts and frameworks. At the end of the major project, students are expected to submit a dissertation/thesis, which is reflection of knowledge acquired in previous studies and demonstrates the prospect to probe profoundly into a research question and integrate the learning while findings the answer. Along with the dissertation/thesis the students are required to present the entire work before an evaluation committee based on the major project guidelines (see additional information).</p>				
Course objectives				
The purpose of major project is				
<ul style="list-style-type: none"> • To enable the student to develop deeper knowledge, understanding, capabilities and attitudes in the context of the climate science, environmental resource, its management, policy implications, development issues, community engagement, holistic approach for energy, environment and sustainable development and providing them opportunity/exposure to real environmental issues. • To enhance skills, capacity and techniques needed for efficient utilization and management of resources to ensure sustainable development. • To independently emphasize on technical/scientific/socio-behavioural aspects of the environmental resource management/ environmental problems/ community-based interventions/ adaptations and to develop critical and analytical thinking towards simplifying and solving such problem/issue. 				
Course content				
Module	Topic	L	T	P
1.	The students carry out the major project dissertation/thesis either in an organization/institution/industry or internally within TERISAS. The students choose a topic based on their research interests while associating with an organization. The students are continuously supervised by their external and internal supervisors, and the progress is monitored jointly. Students working in TERISAS might have only one supervisor (having roles of both external and internal supervisors).	0	0	420
Evaluation criteria				
An evaluation committee will be formed to assess the major project. The distribution of marks for the evaluation would be as per the following criteria (marks of each component is indicated in parenthesis)				
Evaluation distribution				
<ol style="list-style-type: none"> a. Timeline adherence (10 marks) consisting of: joining report (1), synopsis and topic (1), four progress reports (0.5 each), feedback form (1), final dissertation/thesis (5). b. Feedback from the Host Organization/Supervisor (20 marks) c. Dissertation/thesis (40 marks) 				

- d. Presentation and viva (30 marks) - The presentation will be evaluated based on the contents, delivery (structure and flow), research components and timing of the presentation)

Grading criteria

- a. The students scoring less than or equal to 40% (or $\leq 40\%$) overall marks in the evaluation would be considered unsuccessful and would be graded F (fail).
 b. Grading of the Major Project will be done as per the table 1:

Table 1. Major project part – grading

>90	A+
>80 \leq 90	A
>70 \leq 80	B+
>60 \leq 70	B
>50 \leq 60	C+
>45 \leq 50	C
>40 \leq 45	D
\leq 40	F

Plagiarism

TERI SAS has zero tolerance for plagiarism. As per UGC (Regd. no. D. L.-33004/99) dissertation/thesis or any other such documents are free of plagiarism at the time of submission by the student. Plagiarism test shall be conducted on the draft submission of the report. The plagiarism report will be shared with the students and would be assigned to external/internal supervisors to address the plagiarism concerns. The plagiarism report and its percentage would be evaluated with a plagiarism check/verify committee within the department and would be analysed in terms of similarity section if that can be treated as plagiarised such as in case of mathematical formulations/ derivations etc. Based on the finalized plagiarism percentage (of similarity) the marks would be deducted as given in Table 2. It would be responsibility of the student in consultation with external/internal supervisor to resolve the plagiarism issue and the thesis would be deemed to be fit for submission upon written consent of external/internal supervisors to minor project coordinator.

Table 2. Penalty imposed on the student based on plagiarism as per UGC guidelines.

Levels of Plagiarism	Percentage of similarity	Maximum percentage marks to be deducted from dissertation/thesis
Level 3	> 60%	Students registration to the program stands cancelled
Level 2	> 40% \leq 60%	Student repeats the major project next year
Level 1	> 10% \leq 40%	The student is required to resubmit the thesis within a week
Level 0	\leq 10%	0%

Learning outcomes

At the end of this course, the student should be able to –

- Conceptualise research questions, objectives, methodology and conduct appropriate analysis for a chosen research/development project.
- Independently demonstrates/display the knowledge and capability to conduct research and contribute to large scale research and development works.
- Approach and analyse a problem holistically, and to recognize, formulate and deal with complex issues critically, independently, and innovatively.

- Integrate knowledge critically and systematically, and clearly present and discuss the findings in addition to the knowledge and arguments, which constitute the basis for the findings.
- Identify, analyse, and critically evaluate the environmental issues that must be addressed within the framework while taking account of all dimensions of sustainable development.
- Realize the ethical and moral aspects of research work while learning and applying the techniques.

Pedagogical Approach

As required by the dissertation/thesis topic identified by the student and agreed by internal and external supervisors.

Course Reading Materials

1. Topic relevant books and published papers and reports. Sources can be found on but not limited to –
www.scopus.com
www.sciencedirect.com
www.springer.com
www.wiley.com
www.jstor.com
www.taylorandfrancis.com

Additional Information

1. A separate Major project guideline indicating timeline of different activities, and other details will be issued by the department before the start of the semester.
2. Only students meeting the CGPA criteria of 6, for third semester, as defined in Students Handbook will be allowed to take up Major Project course, failing which under no circumstance's student would be allowed to carry out Major Project. It can only be allowed in exceptional circumstances duly approved by the competent authority, where the student must have secured SGPA of 6 in the third semester.
3. The students who need to repeat the major project due to exceptional circumstances with due approval by the competent authority, would be allowed to carry out the major project only in the semester meant for the major project dissertation/thesis. Student should ascertain that the work carried out during repeating the major project should either be an extension of the research done in the previous major project or should be entirely a different topic of research.

Internal Supervisor

1. Each student is required to have one internal supervisor from TERI-SAS (exceptions on the number can be granted if agreed upon and verified); the student must provide a list of three faculty members of TERI-SAS preferred as supervisor along with the joining report. Failure to provide the three choices of supervisor will be considered as non-compliance to major project guidelines and the major project coordinator would be assigning the internal supervisor based on the area of dissertation/thesis proposed matched with expertise of faculty at TERI-SAS.
2. The students should choose the internal supervisor from the Department or outside the Department from TERI-SAS. In case the preference is given for the faculty from any other department, the student should communicate with the concerned faculty well in advance and inform major project department assistant about it by marking a email copy to internal supervisor.
3. The preference for a supervisor should be purely based on research domain/expertise required for the work during major project. The students are required to give the preferences of the internal supervisor within a week of joining the organization/institution. Department will nominate one of the faculty members as supervisor to the student by 2nd week of January. Only in extra-ordinary circumstances the department may nominate faculty other than the preference list as supervisor to the student. The decision for the internal supervisor would be final and no requests should be made for the change of supervisor.

External Supervisor

1. Each student must have one external supervisor from her/his host organization. External supervisors are to be identified by the host organization. Guest/visiting faculty can act as

internal/external supervisor, if mutually agreed upon it.

2. External supervisor is not required, if a student is doing his/her major project under direct supervision of a faculty from TERI-SAS. In such cases faculty at TERI-SAS will be acting as external and internal supervisors.

Student responsibilities

Following the issued instructions and guidelines of the minor project in entirety.

Regular updating the progress of work to the mentor/supervisor.

Timely submission of all required documents through portal.

Prepared by

Dr Chander Kumar Singh

Course Reviewers:

1. **Prof. Pawan Kumar Joshi**, School of Environmental Sciences, Chairperson, Special Centre for Disaster Research, Jawaharlal Nehru University
2. **Dr. Anshumali**, Associate Professor, Department of Environmental Science and Engineering, Indian Institute of Technology (Indian School of Mines)
3. **Prof. Umesh Kumar Singh**, Head of the Dept., Centre for Environmental Sciences, Central University of South Bihar