

Center of Excellence for Oil, Gas and Energy (CoE-OGE), IIT Bombay

Format for Research Project Proposal Under Mission Mode

The Centre of Excellence in Oil, Gas, and Energy at IIT Bombay is jointly funded by IOCL, ONGC, HPCL, BPCL, GAIL, OIL & EIL. It envisages developing technology interventions in consortium mode with PSUs to address future challenges in the oil, gas, and energy sector. To facilitate this, various projects in **mission mode** will be undertaken. These projects will aim at developing and delivering technologies related to present and future issues of the PSUs taking from lab to implementation-ready stage with the core teams that will consist of faculty from IIT Bombay, and representatives from minimum two relevant PSUs. This team may also have experts from other national bodies if required. These projects will be funded through the Centre's budget.

These mission mode projects should be submitted to the PIC of CoE-OGE (pic.coeoge@iitb.ac.in) with a copy to Office CoE OGE (office.admin.coeoge@iitb.ac.in). It will be reviewed by a panel of internal and/or external experts. The PI along with the co-PIs from IITB and the collaborating PSUs need to give a presentation to this experts panel. The project will be discussed and considered for approval in the Advisory Committee of CoE-OGE based on the recommendations from the experts panel.

Details to be provided:

PROJECT TITLE

Details of PIs and CO-PIS:

PI from IIT Bombay: Name, designation, address, mobile, email

Co-PI/s from IIT Bombay: Name, designation, address, mobile, email

Co-PI/s from PSU/s (involvement of minimum two PSUs is mandatory): Name, designation, address, mobile, email

Co-PI/s from Govt agencies / Institutes, if any: Name, designation, address, mobile, email

Section 1: Project summary

Research Objectives:
(bullet point/s)

Scope of work by IIT Bombay

(bullet point/s)

Scope of work by participating PSUs

(bullet point/s)

Background problem statement which the project addresses

(A short write-up is expected)

New work proposed under the Project in comparison with the existing benchmarks

(A short write-up is expected)

- The present TRL of the technology
- The TRL which is aimed by end of the project

Reference for Technology Readiness Levels

Stages	TRLs	Description
Deployment	9	Technology ready for commercial deployment at multiple scales
	8	Technology being qualified for commercial deployment and development of standards
	7	Demonstration of technology under actual operational environments and troubleshooting. Testing in field
Development	6	Demonstration of technology under relevant simulated operational environments. Design and fabrication of prototypes and its demonstration. May be conducted both in academic or industrial premises
	5	Validation of technology through integrated pilot studies . Study will be still under simulated but relevant operational environments. Will be mostly conducted within academic institutions. Development of design parameters
	4	Validation of technology in Lab through systematic investigations such as variation of parameters in the operational range. It provides evidence that the conceptualized application performance might be attained
Research	3	Experimental proof of concept . Laboratory experiments/simulations to prove the concepts
	2	Formulation of concepts for technology and the corresponding applications. Applications are speculative at this stage
	1	Scientific observations made and reported or Literature studies

Deliverables
(Bullet point/s)

Duration

Total Budget (**within 80 Lakhs**)

- Equipments (total)
- Other items (total)

This summary may be published in the list of on-going projects.

Section 2: Origin of the Proposal and identified pathway

Identify the stimuli, which prompted preparations and submission of the project proposal to the CoE-OGE. The source of stimuli could be visits to PSUs, other reports published by CoE-OGE, PSUs, proceedings of a special workshop/ seminar etc. organized by CoEOGE. Please provide relevant details. The problem thus identified may be much broader. In that case, please give a broader picture and phase wise approach or pathway towards the solution. The project may mention multiple phases based on broken down components to be taken up sequentially. Funding will be approved phase wise based on the progress and milestones achieved.

Section 3: Definition of the Problems to be addressed during executing the pathway

Please give precise technical statements of only those problems which the project is expected to cover with the specified duration. Please include a straightforward clear definition of the problem to be handled.

Section 4: International Status & National Status

Please indicate the recent development in the proposed field of work, both in the country and in the other part of the world. This should be in 2 separate parts (namely Indian and international situations) and based on literature survey, inclusion of a list of important review articles, if available, is recommended. The section will enable the referees to appreciate the effort that has been put in preparing the project proposal.

Section 5: Relevance of the proposal in the context of Indian Oil / Gas / Energy sector

The importance of the project should be brought out in this section in the light of the Indian/Oil- Gas sector context. If the proposal is prepared in consultation with PSU Scientists/Engineers please indicate the presenter's name and address. (It is advised that the project proposal be discussed with PSU before submitting for funds)

Please indicate the matters relating to scientific and technical advancement of knowledge, issues concerning application of the new knowledge to the needs of PSUs for promoting new Technology in the country's oil and gas sector.

Specific outcome: The societal/environmental/revenue impact envisaged through this project may also be highlighted in this section.

Section 6: Review of the available expertise within the investigation group / institution

The section is essentially to summarize the background of the investigators. Bio-data of the Principal Investigators who are already in position and available for the project are to be given here, to establish credentials for undertaking the project and to highlight relevance of the project to the research already going on in the sponsoring institution.

Summary details of the projects (completed/on-going or proposed) with different Investigators may be given.

If required any collaborating national institutes may also be identified. This will bring in up to date expertise as well as required capital equipment support into the project. Appropriate budgets for manpower and consumables for such institutes may be included and mentioned separately. However such a collaborative initiative will not be allowed to buy capital equipment.

Section 7: Work plan/ Methodology

It is essential that from this statement the other experts in the field should get a clear understanding of the research technique to be employed in the project as distinct from data/sample collection activities and routine activities. Further, the description should indicate precisely how the stated objectives will be achieved. Discuss different methods of approach in order of priority. It is proposed that all phases of the project from lab work to prototype to pilot plant be covered.

- 1) Details of work plan at IIT Bombay (Phase-wise)
- 2) Details of work plan at PSUs for pilot / demonstration (Phase-wise)
- 3) Details of capacity building programmes for PSU personnel relevant for the project (Phase-wise)
- 4) Approach and methodology for continuous coordination between IIT Bombay team and PSU team - [Project Investigators may please add here](#)

[Note on Coordination by CoEOGE: CoEOGE will conduct quarterly coordination meetings with the project teams from IIT Bombay & the collaborating PSUs. The objective of the quarterly meeting is to jointly present, review & discuss the progress of the project, update the status as per the deliverables and timelines in the proposal. Any support needed for the smooth execution of the project (data/samples required & visits to the PSUs or by the PSU teams) may also be discussed. Besides the progress meetings, the project team members from IITB & the collaborating PSUs are encouraged to suitably interact to ensure achieving the proposed outcomes within the proposed timelines.]

Section 8: Training and capacity building-

The mission mode project may plan and include the training and capacity building for PSU personnel. The details of the same may be planned and indicated.

Section 9: Time schedule

On the basis of work elements identified earlier, the time schedule should be drawn. Here specific indications of milestones will help in periodic evaluation of the progress of the project.

Section 10: Budget Details For Equipments, Salary, Consumables, Travel, fabricating the prototypes, Contingency may be listed:

Note:- The purchase of heavy/permanent equipment for the conduct of the project may be proposed with proper justification. The details of the similar equipment available at IIT, PSUs or other institutes in India should be provided. Maximum effort should be made to check the availability of the equipment for this project within IITB, R&D centres of collaborating PSUs, and other centrally funded institutes, to avoid costly equipment remaining idle. The Executive Committee of CoE OGE may consider purchasing the proposed equipment through the research facilities grant of CoE OGE in consultation with the PI. If it is done so, the equipment will remain as the research facility of CoE OGE, but will be under the inchargeship of the PI in his/her own lab/department premises.

The project will be operated as a sub-project of CoE-OGE with a unique project code from IRCC and overhead charges @ 20% will be admissible on the project cost less the equipment cost purchased through the research facilities grant of CoE OGE.

Note:- Honorarium or fees to regular IITB faculty is not permitted

General Terms and Conditions:

IP rights and NDA

The finalized IPA & NDA documents are signed by all the member PSUs. The executed IPA & NDA documents are available in the link (as in Annexure 1). The signed IPA & NDA documents will serve as umbrella IPA and NDA for all projects under CoEOGE.

To operationalize the umbrella IPA and NDA for a specific project under CoEOGE, for each project under CoE-OGE, the PI and co-PIs of the project from IIT Bombay should sign a declaration form attached to the proposal format. A separate declaration is also to be signed by the PhD/MTech (TAP category) student/s on each project. The declaration will be available as separate annexures (as in Annexure 5 & 6) to the project proposal format.

Certificates

It is mandatory to submit relevant certificates from the Investigators and head of department/centre/unit of IIT Bombay as well as from the approving authority of the participating PSUs. The formats are as given in Annexure 2, Annexure 3 and Annexure 4. Also consent letters should be submitted from any other Govt. funded institutes, if involved in this study

Publications

The part of the project work may be published in journal/s or conference/s with due acknowledgement to the funding by CoEOGE and support by the collaborating PSUs. The authorship to the co-PIs from PSUs will be based on their contribution to the work. In this regard, Clause D of the umbrella IP Clauses document may be referred for the detailed terms and conditions.

Reporting the IPR/Publications/Copyrights/Conference Papers to CoEOGE

It is mandatory for the project investigators to report to CoEOGE the IPR generated or publications, if any. This may be patents (applied or under process of application), publications (communicated or under preparation) or copyrights or conference papers etc.

Review of the project proposals

CoEOGE will send the proposals to the member PSUs, Executive committee members of CoEOGE and/or to the experts from academia and/or industry for review. The external experts

will be bound by NDA before reviewing the project/s. The investigators need to present the proposal and provide clarifications, if required, for the PSUs, Executive committee members of CoEOGE and/or reviewer/s. The final approval of the proposal will be done by the Advisory Committee of CoEOGE, and the investigators need to present the proposal during the Advisory Committee meeting. The review format is given in Annexure 5 as information to the investigators.

Name and signature of PI

Dept at IIT Bombay

Names and signatures of Co-PIs (if any)

Dept at IIT Bombay

Names and signatures of Co-PIs from PSUs (from at least Two PSUs)

Place

Date

Annexure 1: CoE-OGE IP agreement and NDA

NDA: Duration of obligations

The term of this NDA/Agreement shall be for a period of three (3) years and may be renewed for further period under mutual agreement. The obligations of confidentiality shall continue for a period of five (5) years after the termination of the Agreement

IP Clauses

- 1) Any Intellectual property developed as part of a project undertaken by CoE-OGE will be owned by IIT Bombay (IITB IP). The CoE-OGE Members will have non-exclusive rights to the IITB IP/s generated as a result of the said project for their use at a nominal additional charge (license fee). This license fee will be limited to 10% of the specific project cost (excluding applicable GST)
- 2) This license option will be offered only to the CoE-OGE members for a period of three years from the date of a) completion of the Project or b) filing of a patent application for an IITB IP or c) release of a publication of the results or d) at the time of generation of a specific knowhow, whichever is earlier
- 3) IIT Bombay will be free to give non-exclusive license the IITB IP/s to any other party outside of the CoE OGE, as per its discretion, after the said period of three years as given above

The finalized IPA & NDA documents can be accessed using the below link;

<https://drive.google.com/drive/folders/10QNpSyB-LzcctKnNpILJljq8n6QTfMdU?usp=sharing>

Annexure 2: CERTIFICATE FROM THE INVESTIGATORS FROM IITB

Certified that the project proposal entitled -----

----- will be carried out in ----- (name of the Department) subject to approval of the proposal for funding from CoE-OGE-IIT Bombay. The proposal is not currently under consideration for financial support from any other agency.

Name

Signature and Date

1. Principal Investigator _____

2. Co-investigator/s _____

Annexure 3: CERTIFICATE FROM HEAD OF THE DEPARTMENT / CENTRE / UNIT AT IIT BOMBAY

The project entitled -----
----- submitted by ----- (PI) and ----- (Co-PIs) for
funding from CoEOGE is forwarded and it is certified that the necessary space and facilities for
carrying out the work will be made available to the investigators of the project. Further, in case
of any eventuality, if PI is not in the position of carrying out the project, the department will
make necessary alternate arrangements to carry out the project smoothly.

Signature of the Head of the Department -----

Name and seal of the Head of the Department -----

Name of the Department -----

Date :

Annexure 4: CERTIFICATE FROM THE HEAD OF UNIT FROM COLLABORATING PSU / AGENCY

(Separate certificate needs to be submitted by each PSU / Agency)

Certified that the project proposal entitled -----
----- submitted to CoEOGE, IIT
Bombay by ----- (PI from IITB) is acceptable to us and we agree to
support it as per our role mentioned in the proposal. Further we designate the following
person/s on this project from our side. The proposal is not currently under consideration for
financial support from any other agency.

Name of the collaborating PSU / Agency:

(Name/s)

1. PI from the collaborating PSU/Agency _____
2. Co-PI from the collaborating PSU/Agency, if any _____

Signature of the Head of the Unit -----

Name and seal of the Head of the Unit -----

Name of the Unit -----

Date :

Annexure 5: PI DECLARATION to operationalise the umbrella IPA and NDA for a specific project under CoEOGE

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
Office of the Dean R&D

PI DECLARATION

This is with reference to the _____ **<Project Title>**
_____ (**<Project Code>**) having project start date as **<mm/yyyy>** being carried out by IIT Bombay in collaboration with **<Names of collaborating PSUs>** under the framework of COE-OGE MoU.

IIT Bombay and member PSUs of CoE-OGE have signed Non Disclosure Agreement (refer Annexure A) for sharing confidential data/information and IP Agreement (refer Annexure B) for formalizing IP prosecution and commercialization aspects of all the projects under CoE-OGE

Declaration:

I/We declare that I/we have read all the terms and conditions of both NDA and IP Agreement and agree to take responsibility to abide by the terms of both the agreements. I/We will also ensure that all my associates, students and staff, involved in this activity will agree to abide by the terms and conditions in the said Agreements and will sign appropriate documents for the same. All such copies will be made available to IRCC office.

I/We understand that agreeing to the terms in the Agreement will entail stringent due diligence on my/our part and I/We will ensure that no default takes place with respect to any of the provisions of the agreement.

Signature: -----

(PI of Project: <Faculty Name> & <Department>)

Signature: -----

(co-PI of Project: <Faculty Name> & <Department>)

Date: -----

To,
Dean R&D

Annexure 6: PhD/MTech student declaration to operationalise the umbrella IPA and NDA for a specific project under CoEOGE

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
Office of the Dean R&D

PhD/MTech STUDENT DECLARATION

This is with reference to the _____ **<Project Title>** _____ (**<Project Code>**) having project start date as **<mm/yyyy>** being carried out by IIT Bombay in collaboration with **<Names of collaborating PSUs>** under the framework of COE-OGE MoU.

IIT Bombay and member PSUs of CoE-OGE have signed Non Disclosure Agreement (refer Annexure A) for sharing confidential data/information and IP Agreement (refer Annexure B) for formalizing IP prosecution and commercialization aspects of all the projects under CoE-OGE

Declaration:

I declare that I have read all the terms and conditions of both NDA and IP Agreement and agree to take responsibility to abide by the terms of both the agreements.

I/We understand that agreeing to the terms in the Agreement will entail stringent due diligence on my/our part and I/We will ensure that no default takes place with respect to any of the provisions of the agreement.

Signature of student (with date): -----

(PhD Student (TAP) on Project: <Student Name> (Roll No.), <Department>)

Noted that the above declaration has been signed by the student.

Signature of Guide (with date): -----

(Guide: <Faculty Name> & <Department>)

To,
Dean R&D

Proposal Review format by Experts

(For information to Investigators)

Checks against the basic requirements of Mission mode projects		
Sl No.	Evaluation points	Remarks
1	Budget: 20 - 80 lakhs (Adv Com extraordinary approval needed for projects with higher budget)	Rs.
2	Number of PSU collaborators	
3	Number of investigators from IITB	
4	Whether the proposal submitted through proper channel with relevant certificates	Yes/No
5	Is the information provided in the proposal complete as per the requirements?	Yes/No
	Was any meeting or workshop of stakeholders before the project conception?	Yes/No
	Are the capacity building initiatives proposed?	Yes/No
Evaluation based on the R&D merits of proposal		
6	Nature of the Proposed project: New study/Significant invention in the proposed field/Developmental work from existing knowhow	
	Are the deliverables clearly defined?	Yes/No
7	Are the timelines reasonable?	Yes/No
8	Is the need of Equipment Justified? Any suggestions to utilize the existing facilities within CoE OGE/IITB/PSU R&D centres/Other Government funded institutes	Yes/No
9	Are the Deliverables of the project beneficial to the Oil & Gas sector PSUs and how?	Yes/No

10	Whether the new technology/study proposed provides significant improvements as compared to the existing benchmarks among PSUs or helps meet global benchmarks	Yes/No
11	Does the proposal have a Strong lab to field implementation potential?	Yes/No
12	Is pilot study with any PSU proposed?	Yes/No
13	Any other comments to improve the proposal	
14	Overall Recommendation	May be Accepted/Need Revision/May be Rejected
15	Recommended revisions	