

**MEMORANDUM OF UNDERSTANDING  
FOR  
ESTABLISHING "OPAL-RT REAL TIME SIMULATION LABORATORY"  
AT DEPARTMENT OF ELECTRICAL ENGINEERING  
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR  
  
BETWEEN  
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR  
  
AND  
OPAL-RT TECHNOLOGIES**



## 1. Parties:

The parties to this Agreement are:

- Indian Institute of Technology Kharagpur, India, hereafter referred to as "IITKGP"
- OPAL-RT Technologies, India, hereafter referred to as "OPAL-RT"

Mr. Girish Nanjundaiah, Chief Executive Officer, OPAL-RT India shall be the Coordinator from OPAL-RT and Professor A.K. Pradhan shall be the Coordinator from IITKGP. The participants and Coordinators may change from time to time as decided by appropriate authority of the respective institutions.

## 2. Purpose:

The broad objectives of this Agreement are to set-up a real-time simulation laboratory in Electrical Engineering Department, IIT Kharagpur and facilitate application research in the field of Real Time Digital Simulation and hardware in loop testing in the areas of Power Electronics, Power Systems, Control systems etc. This will be with a vision to develop research and development capabilities in the above areas and serve as a research hub for Indian Electrical Engineering Industries.

## 3. Scope:

- 3.1 The laboratory would be developed by IIT Kharagpur with financial and technical support of OPAL-RT as explained in the document further. The physical infrastructure (building space, electricity etc.) for the laboratory would be provided by IIT Kharagpur.
- 3.2 The laboratory shall be named as "OPAL-RT Real Time Simulation Laboratory"



- 3.3 The laboratory will provide an environment for research in system design and testing and it would expose students in real time testing and applications with relevant experiments in Electrical Engineering.
- 3.4 Software, models, test kit, course material or experiment developed in this laboratory will be shared and made available to OPAL-RT. The lab will conduct training program for researchers, students and engineers in consultation and support from OPAL-RT regularly.
- 3.5 While the purpose of this Agreement along with any related Addenda is to outline an academic and management framework between the two parties, designed to promote interaction between the parties, the parties acknowledge that they do not intend to be legally bound to each other, and this Agreement does not impose legal obligations on either party.

4. **Funding:**

a) Fund requirements for the lab:

- 5 real-time simulation benches will be required to make the lab operational. These will be provided by OPAL-RT and will include ePHASORSim, eFPGAsim, eMEGAsim, Hypersim software with appropriate hardware
- OPAL-RT will provide a fund of Rs.10,000 per month for the maintenance and upkeep of the lab. OPAL-RT will send the annual maintenance fund in advance at the beginning of each calendar year to IIT Kharagpur and Department of Electrical Engineering will use it for the purpose of maintenance of the laboratory.



b) OPAL-RT will sponsor awards in recognition of excellence in activities in the laboratory by the students who have used Opal-RT tools in their projects. This will be done every year for the next 5 years. The awardees will be paid directly by OPAL-RT. A committee comprising Dean (PGS), Head, Electrical Engineering and Coordinator of the laboratory from IIT Kharagpur and Coordinator from Opal-RT will be constituted to select the awardees.

<b>B.Tech</b>	Students	Award in INR	Annual Total in INR
Best Project using OPAL-RT tools	2	10000	20000
<b>M.Tech and Ph.D.</b>			
Best Demo model award in OPAL-RT	1	5000	5000
Best M.Tech Thesis award using OPAL-RT tools	1	15000	15000
Best Ph.D. Thesis award using OPAL-RT tools	1	30000	30000
❖ Conference papers based on OPAL-RT tools	5	1000	5000
❖ Journal articles based on OPAL-RT tools	3	10000	30000
❖ Travel Grants for presenting articles based on OPAL-RT tools	5	3000	15000



*Signature*



- ❖ The Conferences or Journals must be of international repute.

**Note:**

- The funding for this lab will be independent of the OPAL-RT product purchases by the Departments, Schools and Centres such as CRR (Centre for Railway Research), SESE (School of Energy Science and Engineering) or any Consultancy Projects in IIT KGP.
- In the event of usage in any funded consultancy/project, mutually accepted fees for usage will be charged to the consultant/project and this money will be used for buying more tools or for maintenance of the Lab.
- The laboratory is expected to become self-reliant through innovative sustenance mechanism after the initial funding support by the Sponsor for the first 5 years.

**5. Management:**

An advisory committee shall be formed with the Chairman nominated by the Director, IIT Kharagpur, and two nominated members each from IIT Kharagpur and OPAL-RT. For IIT Kharagpur, the members will be Head, Electrical Engineering and the Coordinator of the laboratory. The Committee shall meet at least twice a year to review the progress and advise functionality.

**6. Intellectual Property Rights (IPR):**

(a) The rights management of Intellectual Properties resulting out of the activities in the lab would be as per IIT Kharagpur IPR policy.



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(b) Sponsor, i.e., OPAL-RT shall have non-exclusive rights to use the technologies developed during the life of the MOU, apart from having access to the knowledge developed.

(c) Any downstream development and derivatives of the technologies having prior protection after the lifetime of the MOU however shall be solely owned by IITKGP. No other party shall have any claim whatsoever on such downstream derivatives.

(d) Sponsor, i.e., OPAL-RT shall have the first right to negotiate an exclusive right to use the technologies developed during the life of the MOU against a mutually agreed royalty or other conditions.

## 7. Roles and Responsibilities:

### IIT KGP

(a) Facilitate Undergraduate, Postgraduate, Doctoral and Post-Doctoral students to participate in fulfilling the objectives of the laboratory and also act as suitable resource persons for the development activities.

(b) Provide requisite technical and infrastructure (existing/augmented) facilities at IIT Kharagpur campus for the proposed lab and take up the teaching and development activities stated above and also other activities as suggested by the core committee from time to time.

(c) Any student who conducts his/her studies and research using OPAL-RT platforms in the OPAL-RT Real Time Simulation Laboratory may be selected for the OPAL-RT awards at the end of the successful project. The award ceremony may be held during a departmental function, such as the Departmental Research Scholars' Day.

(d) Any academic output from the Laboratory in the form of patents, innovations, published papers, pilot sample development, project/study reports, application



development etc., should acknowledge the Laboratory and OPAL-RT platform used in the study.

- (e) Organize seminar and workshops as may be mutually decided from time to time.
- (f) Shall facilitate conducting review meetings at least once in six months by the core committee along with the Funding Agency.
- (g) Tutorial material with OPAL-RT usage in approved Power Electronics and Power System Courses will be created for teaching and laboratory experiments

#### OPAL-RT

- a) Release the approved equipment and budgeted fund as agreed in this MOU, so as to ensure smooth functioning of the Lab.
- b) Depute two persons of appropriate background in the advisory committee.

#### 8. Liability:

IITKGP shall not be liable for any loss or damage incurred by the Sponsor and/or Industries arising out of the application of research results to the extent that such loss or damage does not result from gross willful negligence on the part of IITKGP, the Research Associate(s) and/or their supervisor, as the case may be nor shall it be liable for loss or damage of the data provided by the sponsor, where occurring due to unforeseen cause.

#### 9. Duration/Term of the MOU

This MOU shall be valid for **five years** from the date of signing and may be extended in writing by the two parties.



*[Handwritten signature]*



10. **Termination**

The parties may recommend premature termination of the MOU after serving 3 (three) months notice or till the end of the academic year, whichever is later. If such a premature termination occurs, the equipment donated by OPAL-RT under this MoU shall be returned to OPAL-RT.

11. **CONFIDENTIALITY**

- a) During the TERM of the MOU, either party may seek and obtain, if permitted, proprietary and confidential information. All such information shall be marked "confidential and proprietary" at the time of transmission.
- b) PROPRIETARY INFORMATION for the purposes of this MOU shall include all data, samples, discoveries, inventions, technical information, reports, know-how and other information related to and disclosed by either party to the other party in any form of written materials and it shall be the duty of the receiving party to maintain its confidentiality.
- c) The Sponsor and IITKGP agree to hold PROPRIETARY INFORMATION in confidence and to take reasonable measures to protect it against disclosure to the public and third parties. Accordingly the Sponsor and IITKGP shall employ protective measures fully commensurate with those used by it to protect its own trade secrets and other confidential information from disclosure to the public and to third parties including the industry partners involved in industry-academia partnership, but in no event less than the ordinary degree of care required by law to preserve the secrecy of information that under such law is deemed confidential. If necessary, the parties may decide to execute suitable confidentiality agreements before disclosure.





- d) Both parties agree to use PROPRIETARY INFORMATION only during the TERM of the MoU.
- e) Both parties agree not to copy, reproduce or otherwise reduce to writing any Part of PROPRIETARY INFORMATION except and only as may be reasonably necessary for any project under this MoU.
- f) IITKGP will be free to publish research results out of this laboratory that does not contain PROPRIETARY INFORMATION. In case it contains proprietary information IITKGP shall submit a copy of such thesis, papers etc., to the Sponsor for examination, comments and approval, a decision on which shall be communicated within eight (8) weeks by OPAL-RT.

**12. Arbitration Clause**

All disputes or differences whatsoever arising amongst the parties hitherto out of or relating to this MOU shall be settled mutually by the Director, IIT Kharagpur or his authorized agent and Chief of the Sponsor or his authorized agent.

**13. CHANGES/AMENDMENT**

Additions, deletions and/or alterations to this MOU may be effected with written mutual agreement of all the parties.

**14. FORCE MAJEURE**

Any delay or failure by any party to perform its obligations hereunder shall be excused if any and to the extent that it is caused by an event or occurrence beyond the reasonable control of the Party and without its fault or negligence, such as, by way of example and not by way of limitation, actions by any governmental authority



(whether valid or invalid), fires, floods, windstorms, explosions, riots, natural disasters, insurgency, wars, sabotage, labor problems (including lockouts, strikes and slowdowns), inability to obtain power, material, labor, equipment or transportation or court injunction or order; provided that written notice of such delay (including the anticipated duration of the delay) shall be given by the affected Party to the other Party within ten (10) days. If requested by any of the Parties, the other Party shall, within ten (10) days of such request, provide adequate assurances that the delay shall not exceed thirty (30) days. If the delay lasts more than three months, the requesting Party may, by written notice to the other Party, recommend cancellation of this MOU to the Governing Council without liability.

IN WITNESS WHEREOF all the parties hereto set their hands and signed the Memorandum of Understanding on the    day of    month and year Two Thousand and Fifteen.

For and on behalf of IIT Kharagpur

Signature   
Director, IITKGP  
Office Seal **Director**  
**Indian Institute of Technology Kharagpur**  
Kharagpur - 721302, India


WITNESS:



For and on behalf OPAL-RT Technologies

Signature   
CEO, OPAL-RT India  
Office Seal



WITNESS:   
T. ILAMPARITHI