

# MEMORANDUM OF UNDERSTANDING

Between



**ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY**

Surampalem, East Godavari, Andhra Pradesh - 533437

&



**Centre of Excellence in Maritime & Shipbuilding (CEMS)**

(A Skill Development Initiative by Govt. of India / Ministry of Shipping / Sagarmala)

Opp.HSL Complex, Gandhigram, Visakhapatnam, Andhra Pradesh-530005

This Memorandum of Understanding (hereinafter referred to as "MoU") is entered into this agreement on this day 28<sup>th</sup> Feb, 2020 by and between

**Centre of Excellence in Maritime & Shipbuilding** (hereinafter referred to as "CEMS"), located at , Gandhi gram, Visakhapatnam – 530 005, India is a well-funded startup in skill development for imparting training with industry 4.0 focus on advanced Design, Automation, Manufacturing and Maintenance, Repair & Overhaul(MRO) domains which caters for all industrial sectors.. It is promoted by Indian Register of Shipping in partnership with Siemens and support from Sagarmala, Ministry of Shipping/ Govt of India with an aim to provide globally relevant skilled technical manpower in the latest manufacturing technologies for ship building/repair and high end manufacturing sectors.

CEMS is a dedicated Centre for facilitating professional development and skill enhancement in maritime, infrastructure and manufacturing sectors. It is aimed to build competency in manufacturing industry with industry 4.0 focus by imparting right skills and create skilled manpower pool to cater to current and future industrial landscape of the country, thereby providing better employment opportunities to students and work force.

**AND**

**Aditya College of Engineering & Technology**, (hereinafter referred to as ACET Surampalem, East Godavari, Andhra Pradesh – 533437) ACET with a motto of providing quality engineering education in a highly disciplined environment with international standards, along with character building of students who will be able to stand up to the challenges of the present employment market with a vision to foster prosperity through technological development by means of education, innovation and collaborative research and emerge as a premier technical institution.. The mission to provide quality education of international standards for producing technocrats and future leaders in a disciplined and conducive environment as an integral part of our social commitment to promote education globally. ACET is a pioneering Institution of Higher Education in India with Potential for Excellence by the UGC. The portal of this great temple of learning has welcomed intellectual, cultural and social giants from the length and breadth of the Country who left indelible footprints on the sands of time making ACET a proud alma-mater.

**AND TOGETHER HEREAFTER REFERRED AS PARTIES**

Whereas the first party CEMS, Visakhapatnam, will provide above 50 courses across 18 specializations; covering 770 modules out of which 271 will be tools and algorithm based courses while 500 will be process and sector based.

And whereas the second party ACET, Surampalem is an Educational Institution providing education in various U.G and P.G programmes including certificate courses in Engineering. It has the vision and mission to impart quality education of International standards with a major focus on conducting skill development and outreach programmes.

### **GENERAL Agreement**

In order to facilitate industry-institute interaction for technical advancement, to develop academic and industrial relationships and support collaborative research activities, Aditya college of Engineering & Technology hereinafter addressed as ACET and Centre of Excellence in Maritime & Shipbuilding, hereinafter addressed as CEMS, agree to establish this Memorandum of Understanding (MOU) as a framework for cooperative programs.



### **ARTICLE I Faculty Visits and Training**

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**Aditya College of Engineering & Technology**  
**SURAMPALFM - 533 437**

## ARTICLE I Faculty Visits and Training

It is agreed that linkages will be strengthened by visit of faculty from ACET to CEMS and CEMS faculty to ACET. The purpose of these visits by the faculty is primarily to facilitate the following:

- \* Training of ACET faculty by member of CEMS on Design, Advanced Manufacturing and as well as on Automation and MRO
- \* Training and exposure of faculty with focus on Industry 4.0 Skills
- \* Assist faculty and students of ACET for project studies.

Arrangements for each such visit will be made by ACET. Purpose, timing and other details concerning these exchanges and short visits in this regard shall be mutually acceptable to both the institutions. It is agreed that information concerning the purpose and duration of the visit by the faculty, the proposed topics of study, details of the personnel visiting and any further details, as required, will be provided to CEMS by ACET at least two weeks prior to the proposed visit.

CEMS will be Conducting Orientation Programs to Faculty Free of Cost and Faculty Development Training in various domains will be at mutually agreed cost.

## ARTICLE II Student Training

Further to the above, it is also agreed that CEMS will support and facilitate visits of groups of students from ACET. The purpose of these visits by the students is as follows:

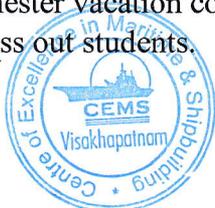
- \* Industrial visits at II year level to study and understand functioning of an industrial establishment
- \* Industrial visit at III year level to undertake mini-projects and pilot studies for full-fledged projects
- \* Vocational training in design, Advanced Manufacturing and Automation to equip students at III year or IV year levels to acquaint themselves with industry 4.0 procedures and operations so as to prepare themselves to face the challenges of the industrial world upon graduation

A. As in the case of Article I, arrangements for each such visit will be made by ACET in the form of formal letters seeking permission as well as the convenience of CEMS to send the student groups. Purpose, timing and other details concerning these exchanges shall be mutually acceptable to both the institutions. It is agreed that information concerning the number of students visiting, duration of the visit, the proposed topics of study and any further details, as required, will be provided to CEMS by ACET at least two weeks prior to the proposed visit.

CEMS will charge course fees for conducting various courses will be decided mutually. The course fees will include training fees and cost of consumables used for training. Cost of Raw Material required for projects, where applicable will be borne by the Students. Study material soft copy will be provided to the trainees. The trainees will have access of the Presentations for 90 days from course commencement. Accommodation, if needed by the students can be arranged in CEMS hostel at a nominal fees of Rs 300 for accommodation and Rs 200 for breakfast, lunch and dinner. The accommodation is sharing type and can be made available on prior intimation only.

**A. Students Trainings (available for B. Tech & MTech students) on various technologies available at CEMS Centre's.**

- \* Short term courses (average 40 hrs of training) as part of Credits (Course curriculum) or optional
- \* Diploma & Certificate courses (average 200 hrs of training) as part of credits (Course curriculum) or optional
- \* Weekend / semester vacation courses
- \* Training for pass out students.



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**B. Faculty Development Program at CEMS Visakhapatnam.**

**C. Internships as per AICTE guidelines at CEMS by participating institutes students**

- \* Internship Programs for Credits
- \* Visit to CEMS Vizag as part of Industrial visit/ Internship Program for exposure to all engineering disciplines (as per 18 labs, details attached before)

**D. Customized courses for students & faculties as per the requirement.**

**E. Availability of Labs for undertaking Industry Projects and experiments.**

**F. Teaching staff or research scholars of the participating institute can use resources of CEMS for their thesis work.**

**G. All courses of CEMS shall be certified by Siemens and Indian Register of Shipping (IRS).**

H. Students and teaching staff of the participating institute can explore CEMS resources such as lab infrastructures, teaching staff, courses and its certification, and highly level industry relevant course materials & IP's

**WHEREAS:**

1. In pursuant to Memorandum of Understanding signed between Centre of Excellence in Maritime and Shipbuilding (CEMS) and Aditya college of Engineering & Technology (ACET), this agreement is entered.
2. To detail areas of cooperation between the parties in areas of academics, certification, student's allocation for undertaking certificate courses at CEMS, teaching & technical staff allocations for Train the Trainer (ToT) program.
3. To fix 15 Teaching Staff schedule for their trainings under Train the Trainer program (ToT) at CEMS. CEMS and the College shall mutually decide the schedule based on the availability of teaching staff and the lab infrastructure.

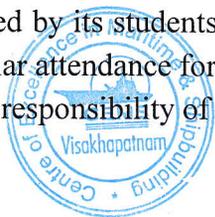
CEMS and ACET have mutually discussed and agreed to enter into this agreement as detailed hereinafter.

NOW THEREFORE, in consideration of the mutual promises contained herein and other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. CEMS has invited ACET to participate under its "CEMS College Extension Program (CEP)".
2. Under CEMS CEP, participating College shall assign their regular students based on the student's specific interest to CEMS Vizag Centre for stated period as per mutually decided timings.
3. The courses offered to the students are of three categories;
  - a. Basic / Foundation Level courses – Average study of 40 hours.
  - b. Intermediate / Master Level Courses – Average study of 70 hours.
  - c. Advance / Expert Level Courses – Average study of 100 hours.

Further for comprehensive training in each domain, Diploma and Certificate Programs which are of average 200 study hours are offered.

4. The course fee for each of the course will be decided mutually. Fees will be revised in Mutual Discussion with the college Representatives
5. CEMS shall on its own can club few courses or modules as per the current industry needs and can make bigger or smaller duration courses to suite the academic needs containing elements from basic, intermediate or advance courses. Such courses and fee per student will be proportionate to duration of the course.
6. The participating College shall provide the students of its College as per the time table decided for the course enrolled by its students. The participating College will treat the time spent by its students at CEMS as regular attendance for its academic regulations.
7. CEMS shall take responsibility of the student's attendance for the time they are enrolled with CEMS.



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SIRAMPALAM 522 422

8. The participating College shall provide its transport facility to students wherever possible to attend CEMS classes. Otherwise transportation will be responsibility of students.
9. CEMS shall collect the course fee either directly or the participating institute can collect the fee and remit it to CEMS.

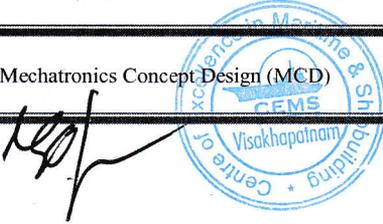
NEFT/RTGS details for remittance of fees:

BANK NAME	ICICI BANK
A/C NAME	CENTRE OF EXCELLENCE IN MARITIME & SHIPBUILDING (CEMS)
A/C NO	A/C NO-126901000796
BRANCH	HSL Complex, Visakhapatnam.
IFSC CODE	ICIC0001269

**Center of Excellence in Maritime & Ship Building Visakhapatnam**, has excellent infrastructure and qualified trainers and man power to impart skill training and to offer Diploma and Certificate courses as follows: -

**Diploma in following courses**

Sl No	Course	Modules Covered	Eligibility
1	3D CAD	<ul style="list-style-type: none"> <li>▪ Essentials for Designers,</li> <li>▪ Sketching Fundamentals,</li> <li>▪ Synchronous Modelling Fundamentals,</li> <li>▪ NX Sheet Metal,</li> <li>▪ Drafting Essentials,</li> <li>▪ Intermediate Design &amp; NX Assemblies,</li> <li>▪ Advanced Assembly Design / Large Assembly Management,</li> <li>▪ Class A Free Form Modelling/ Mechanical Free Form Modelling</li> <li>▪ Engine Design,</li> <li>▪ Synchronous Modeling and Parametric Design,</li> <li>▪ Routing Mechanical,</li> <li>▪ Routing Electrical</li> </ul>	B.Tech-Mechanical
2	CAE & NVH (Noise, Vibration & Harshness)	<ul style="list-style-type: none"> <li>▪ CAE-Advanced Simulation Process &amp; Solutions,</li> <li>▪ Thermal &amp; Flow Analysis,</li> <li>▪ Motion Analysis,</li> <li>▪ Laminate Composite,</li> <li>▪ Advance Thermal &amp; Flow Analysis,</li> <li>▪ Advanced Finite Element Analysis (FEA),</li> <li>▪ NVH- Vibration Measurements and Analysis,</li> <li>▪ Modal Testing and Analysis,</li> <li>▪ Acoustics Measurements and Analysis,</li> </ul>	
3	PLM	<ul style="list-style-type: none"> <li>▪ Essentials for Designers,</li> <li>▪ Advanced Simulation Process,</li> <li>▪ Basics of RobCAD,</li> <li>▪ TCUA - Using TC,</li> <li>▪ TCUA - Installation,</li> <li>▪ TCUA - Integration for NX users,</li> <li>▪ TCUA- Application &amp; Data Model Administration</li> </ul>	
4	Robotics & DM	<ul style="list-style-type: none"> <li>▪ Tecnomatix – Process,</li> <li>▪ Tecnomatix – RobCAD,</li> <li>▪ Tecnomatix – Flow,</li> <li>▪ Industrial Robotics Basics-KUKA</li> <li>▪ Robotics Application – 1) Material Handling, 2) MIG Welding, 3) PLASMA Cutting</li> </ul>	
5	Mechatronics Concept Design (MCD)	<ul style="list-style-type: none"> <li>▪ PLC Programming ,</li> <li>▪ Essentials for Designers,</li> <li>▪ MCD ,</li> </ul>	




  
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		<ul style="list-style-type: none"> <li>▪ HMI,</li> <li>▪ Mechatronics</li> </ul>	
6	CAM & CNC	<ul style="list-style-type: none"> <li>▪ NX CAM Manufacturing Fundamentals,</li> <li>▪ NX CAM Turning Manufacturing Process,</li> <li>▪ Turning NC Programming,</li> <li>▪ Milling NC Programming,</li> <li>▪ TURNING- Operating and Machining,</li> <li>▪ MILLING- Operating and Machining</li> </ul>	
7	Maintenance Repair & Overhaul (MRO)	<ul style="list-style-type: none"> <li>▪ Welding,</li> <li>▪ Pneumatics,</li> <li>▪ Hydraulics,</li> <li>▪ Pumps,</li> <li>▪ Piping System</li> </ul>	
8	Industrial Automation & Mechatronics	<ul style="list-style-type: none"> <li>▪ PLC Programming,</li> <li>▪ HMI &amp; NETWORKING ,</li> <li>▪ Designing SCADA System,</li> <li>▪ Mechatronics</li> </ul>	B.Tech- ECE / EEE
9	Process Automation	<ul style="list-style-type: none"> <li>▪ PLC Programming,</li> <li>▪ HMI &amp; NETWORKING,</li> <li>▪ Designing SCADA System &amp; Process Instrumentation</li> </ul>	
10	Mechatronics Concept Design(MCD)	<ul style="list-style-type: none"> <li>▪ PLC Programming,</li> <li>▪ Essentials for Designers ,</li> <li>▪ MCD,</li> <li>▪ HMI &amp; NETWORKING</li> <li>▪ Mechatronics</li> </ul>	
11	Distributed Control System(DCS)	<ul style="list-style-type: none"> <li>▪ PLC Programming,</li> <li>▪ HMI &amp; NETWORKING,</li> <li>▪ Designing SCADA System,</li> <li>▪ Process Instrumentation</li> <li>▪ Simatic PCS 7 Basics</li> </ul>	
12	Electrical Drives & Switch Gears	<ul style="list-style-type: none"> <li>▪ AC/DC Drives,</li> <li>▪ Low Voltage Switchgear,</li> <li>▪ Power systems</li> <li>▪ Induction Motors</li> </ul>	

a. Certificate Courses

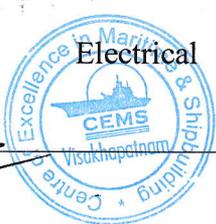
Lab	Domain	Course Title	Total Duration (hrs.)
Product Design and Validation (PDV)	CAD	Essentials for NX Designers	40
		Sketcher Fundamentals	16
		Drafting Essentials	24
		Synchronous Modelling Fundamentals	16
		Synchronous Modeling and Parametric Design	24
		Intermediate Design & NX Assemblies	40
		NX Sheet Metal	16
		Class A Free Form Modelling/ Mechanical Free Form Modelling	40
		Advanced Assembly Design / Large Assembly Management	24
		Routing Mechanical	16
	Routing Electrical	16	
	CAM	NX CAM Manufacturing	32



*[Handwritten Signature]*

		Fundamentals	
		NX CAM Turning Manufacturing Process	32
	CAE	Advanced Simulation	40
		Thermal and Flow Analysis	24
		Laminate Composites	8
		Motion Simulation	24
		Advanced Finite Element Analysis (FEA)	20
		Using Teamcenter	32
		Teamcenter Installation	40
		Teamcenter Integration for NX users	8
		Schedule Manager	16
		TC Application & Data Model Administration	40
		Mock-up	24
		Tecnomatix – RobCAD	32
		Tecnomatix – Flow	40
		Tecnomatix – Process	48
		Vibration Measurements and Analysis	20
		Modal Testing and Analysis	30
		Acoustics Measurements and Analysis	20
		TURNING-Numerical Control Programming	32
		MILLING-Numerical Control Programming	32
		Turning Operating and Machining	32
		Milling Operating and Machining	32
		Basics of PLC	50
		HMI & NETWORKING	40
		Basics of SCADA	50
		Basics of Mechatronics	50
		Welding	60
		Industrial Robotics Basics - KUKA	40
		Robotics Applications	120
		Basics of Process Instrumentation	50
		SIMATIC PCS 7 Basics	50
		Basics of Induction Motors	24
		Basics of AC-DC Drives	40
		Basics of Low Voltage Switchgear	40
		Basics of Power systems	40

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Pneumatics & Hydraulics	MRO	Pneumatics Hydraulics	60 60
Virtual Reality	VR	Virtual Reality	8
Pumps Training System	MRO	Pumping System	50
		Piping System	40
Radar System	RADAR	Radar systems	50
Dimensional Accuracy and Control System	Marine	Dimensional Accuracy and Control System	40
Nesting- Productivity Improvement Lab		Nesting Productivity Improvement Lab	40
Hull Design		Hull Design	120

### ARTICLE III

#### Courses: Seminars, Workshops, Refresher Courses

It is agreed that ACET will arrange periodic seminars, workshops and refresher courses in collaboration with CEMS. The purpose of these courses is to facilitate and maintain on-going Industry-Institute Interaction as well as provide a forum for faculty of ACET as well as those of institutions in the vicinity to discuss on topics of current interest both to ACET as well as CEMS. Experts from CEMS as well as faculty from ACET with significant exposure in the topic of interest will coordinate and conduct these courses.

Arrangements for such courses will be made by ACET in keeping with the convenience of experts from CEMS. Purpose, timing and other details concerning these courses shall be mutually acceptable to both the institutions. It is agreed that information concerning the duration of the visit, the proposed topics of the course and any further details, as required, will be mutually discussed by ACET with CEMS by ACET at least one month prior to the schedule of the course or workshop.

### ARTICLE IV

#### Cooperative Research

It is anticipated that significant opportunities, of which a few have been identified, exist for cooperative research between ACET and CEMS. Such clearly beneficial activities may require specific arrangements. In view of the importance of cooperative research, CEMS will provide necessary support to visiting faculty from ACET to study research problems at CEMS. Such problems will be analyzed and solutions suggested by ACET.

### ARTICLE V

#### Competence in Consultancy

It is also anticipated that significant opportunities exist for taking up consultancy works with industries. ACET has state-of-the-art equipment ideally suited to taking up consultancy work for industries in the area of materials testing, machinability testing, fabrication of complicated parts, dynamic testing or equipment etc. CEMS will provide necessary assistance and guidance to ACET to develop such consultancy capabilities initially by working on challenges faced by CEMS and later extending the expertise gained to other industries.

### ARTICLE VI

#### Exchange of Scientific Materials

Both the collaborating parties agree to exchange as widely as is practicable such items as scientific publications and journals, college calendars, prospectuses, text books, course outlines and reference materials that may be necessary and of use to either party.



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**ARTICLE VII**  
**Duration of Memorandum of Understanding**

The effective date of this MOU shall be 28<sup>th</sup> Feb 2020. The MOU shall extend for a period of 3 (Three) years and may be renewed upon mutual written agreement. The MOU may be modified by mutual written agreement. The MOU may be terminated by either CEMS or by ACET with notification to the other party six months prior to the effective date of termination.

**ARTICLE VIII**  
**Indemnification**

Centre of Excellence in Maritime & Shipbuilding (CEMS) and ACET shall each indemnify and hold harmless the other, its faculty/officers, agents and employees, for any and all liability, damages and costs attributable to the negligent acts or omissions of the indemnifying party, its faculty/officers, agents and employees while acting in the scope of their employment and in furtherance of activities described in this Memorandum of Understanding.

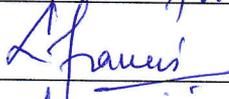
**ARTICLE IX**  
**Liability Insurance**

Each party shall maintain its own insurance in amounts deemed appropriate for its operations. Such insurance shall provide coverage for negligent acts, errors, or omissions and provide protection against bodily injury or property damage claims. It is expressly understood that each party shall be solely responsible for its own actions and such insurance shall not extend to protect any other party.

**ARTICLE X**  
**Conduct**

Each party shall abide by the rules and regulations of the host institution especially in regard to visits by the faculty/students of ACET to CEMS.

In witness hereof, the Centre of Excellence in Maritime & Shipbuilding (CEMS), and Aditya College of Engineering & Technology (ACET) have executed those presently in manner hereinafter mentioned on the 28th day of Feb 2020 at 11:00AM.

<b><u>SIGNED ON BEHALF OF</u></b>	
<b>Centre of Excellence in Maritime and Shipbuilding (CEMS)</b>	<b>Aditya College of Engineering &amp; Technology (ACET)</b>
Commander S Gopi Krishna (IN Retd.)	Dr.T.K.Rama Krishna Rao
Signature: 	Signature: 
Chief Operating Officer (COO) <small>For Centre of Excellence in Maritime &amp; Shipbuilding (C.E.M.S.)</small>	Designation: Principal <b>PRINCIPAL</b> <b>Aditya College of Engineering &amp; Technology</b> <b>SURAMPALFM - 533 437</b>
<b><u>Witness</u></b> <b>Cdr Gopi Krishna Sivvam</b> <b>Chief Operating Officer</b>	
Name: <i>Livingston James</i>	Name: <i>A.V.B. S. Sarma</i>
Signature: 	Signature: 
Designation: <i>Marketing Manager</i>	Designation: <i>A.O.</i>