

3.5.1. Number of functional MoUs/linkages with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research during

A.Y 2018-19

Sl. No.	Name of the MoU / linkage	Name of the institution / industry with whom the MoU / linkage is made, with contact details	Year of signing MoU / linkage	Purpose of the MoU/Linkage (Internship, on-the-job training, project work, student / faculty exchange and collaborative research)	Duration of MoU / linkage	List the actual activities under each MOU/ Linkage and web -links year-wise	Link to the relevant document
1	Software Training	Polyedge Consultancy, MIDC Shiroli	2018-19	Training, Guest lecture	5 Yrs	Training Program on "Advanced building architectural software 3D Max, V ray and Photoshop"	
2	Internship	URAL FEDERAL UNIVERSITY, RUSSIA	2018-19	Internship	45 Days	UG FELLOWSHIP 2019, SUMMER INTERNSHIP AT ABROAD UNIVERSITTIES	
3	Enhance Quality of Education	Walchand College of Engineering, Sangli	2018-19	Faculty development, Guest Lecture, Collaborative R&D	3 yrs	Guest lecture	

MEMORANDUM OF UNDERSTANDING

BETWEEN

Ashokrao Mane Group of Institutions,
Vathar tarf Vadgaon, Kolhapur – 416 112

AND

PolyEdge Consultancy

A/p - Shirol (Pu)
Tal- Hatkanangale Dist- Kolhapur
Mobile 9527220643
Email – mail2polyedge@gmail.com

PREAMBLE

Whereas, Ashokrao Mane Group of Institutions Vathar tarf Vadgaon, Kolhapur, Pin. No. 416112 at its various Engineering and Technology, Departments is engaged in imparting technical education at UG/PG level.

WHEREAS, Ashokrao Mane Group of Institutions, Vathar tarf Vadgaon, Kolhapur is engaged in academic activities in various disciplines in engineering, technology etc. as well as research, design and development and consultancy in the field - TO BE INTRODUCED HERE and related fields.

WHEREAS, both **AMGOI** and **POLYEDGE CONSULTANCY**

, now

- Recognizing the importance of research and development in the areas TO BE INTRODUCED HERE, etc.
- Appreciating the need for creation of large reservoir of highly qualified manpower in all fields related to TO BE INTRODUCED HERE
- Desiring to club their efforts by pooling their expertise and resources,

INTEND to form a nucleus for promoting excellent quality manpower in the fields of engineering, technology and science with special emphasis on TO BE INTRODUCED HERE and related fields etc.

NOW, THEREFORE, in consideration of the mutual promises made herein and of good and valuable consideration, the receipt and sufficiency of which both **AMGOI** and **POLYEDGE CONSULTANCY** hereby acknowledge, **AMGOI** and **POLYEDGE CONSULTANCY** hereby agree to sign a memorandum of understanding (MOU).

ARTICLE-I: SCOPE OF THE MOU

This MOU details the modalities and general conditions regarding collaboration between **AMGOI** and **POLYEDGE CONSULTANCY** for enhancing, within

the country, the availability of highly qualified manpower in the areas of TO BE INTRODUCED HERE without any prejudice to prevailing rules and regulations in AMGOI and POLYEDGE CONSULTANCY without any disregard to any mechanism evolved and approved by the competent authorities under Govt. of India in so far as such mechanism applies to AMGOI and POLYEDGE CONSULTANCY The areas of cooperation can be extended through mutual consent.

ARTICLE-II: SCOPE OF ACADEMIC INTERACTIONS

Both AMGOI and POLYEDGE CONSULTANCY shall encourage interaction between the Scientists, Research fellows, faculty members and students of both the organizations through the following arrangements:

- a) Organization of joint conferences, workshop, seminars and guest lectures.
- b) Practical training or visit of AMGOI students at Project of POLYEDGE CONSULTANCY under projects.
- c) Joint guidance of student projects/thesis.
- d) Financial support for students

ARTICLE-III : SHARING OF FACILITIES

- a) AMGOI and POLYEDGE CONSULTANCY shall make provisions to share their respective important R&D facilities in order to promote academic and research interaction in the areas of cooperation.
- b) AMGOI and POLYEDGE CONSULTANCY shall provide access to testing facilities, share expert opinion in case of practical problems.

ARTICLE-IV : EFFECTIVE DATE AND DURATION OF MOU

- a) This MOU shall be effective from the date of its approval by competent authorities at both ends.
- b) The duration of the MOU shall be for a period of 5 years from the effective date.

During its tenancy, the MOU may be extended or terminated by a prior notice of not less than six months by either party. However, termination of the MOU will not in any manner affect the interests of the students/faculty/scientists who have been admitted to pursue a program under the MOU.

- d) Any clause or article of the MOU may be modified or amended by mutual agreement of POLYEDGE CONSULTANCY and AMGOI.

ARTICLE-V : IPR

Rights regarding publications, patents, royalty, ownership of software/design/product developed etc. under the scope of this MOU, shall be decided by the two parties by mutual consent.

ARTICLE-VI: CONFIDENTIALITY

During the tenure of the MOU both **AMGOI and POLYEDGE CONSULTANCY** will maintain strict confidentiality and prevent disclosure of all the information and data exchanged under the scope of this MOU for any purpose other than in accordance with this MOU. Both **AMGOI and POLYEDGE CONSULTANCY** shall bind their respective personnel who come into possession or knowledge of any confidential information not to disclose the same to third parties without written approval of the disclosing party or use such confidential information for any use other than intended under this agreement.

Further both **AMGOI and POLYEDGE CONSULTANCY** shall put in place adequate and reasonable measures to keep and store confidential information secure so as to prevent any unauthorized use.

IN WITNESS WHEREOF PARTIES HERE TO HAVE ENTERED INTO THIS AGREEMENT EFFECTIVE AS ON THE DATE AND YEAR FIRST WRITTEN ABOVE.

[Signature]
Director

Ashokrao Mane Group of Institutions,
Vathar tarf Vadgaon, Kolhapur, - 41612

[Signature]
Director

POLYEDGE CONSULTANCY
A/p-Shiroli (Pulachi), Dist- Kolhapur



Witness

- 1 *[Signature]* Dr. Leeladhar Pannu
- 2 *[Signature]*



Witness

- 1 *[Signature]* Rohit Ketkar
- 2 *[Signature]* Bhosale Rameshchandra

Date 11/07/2018

Date: 11/07/2018

Memorandum of Understanding

between



**Walchand College of Engineering,
Sangli**

and



Ashokrao Mane Group of Institutions

Vathar Tarf Vadgaon,

Tal: Hatkalangale, Dist: Kolhapur (Maharashtra)

Under

AICTE Margdarshan Scheme

2018-19

AICTE - Margdarshan Scheme

Memorandum of Understanding

The MEMORANDUM OF UNDERSTANDING (MOU) is between Walchand College of Engineering Sangli (Hereafter called WCES) as Mentor Institute and Ashokrao Mane Group of Institutions (Hereafter called AMGOI) as Mentee Institute for the purpose of enriching the technical education process and to jointly work for enhancing the quality of education imparted to faculty, staff and students is signed on 1/10/2018

This MOU entered into between WCES and AMGOI represented in this MOU by the respective Directors/Principals on behalf of Board of Governors, of their Institutes which shall mean and include their successors in interest and assigns.

Following points are agreed upon as part of this understanding:

Terms & Conditions

1. Nature of Relationship:

This MOU is for collaboration between both parties, for mutual benefit, for the many purposes set out as given below to enhance the quality of the educational experience for faculty, staff and students.

This MOU shall be valid for 3 years from the date of signing and each party shall be at full liberty to terminate the collaboration, with a notice period of 3 months.

Both parties shall take all reasonable steps to ensure the successful completion of the collaboration and co-operate with each other in duly carrying out the obligation agreed upon.

2. Objectives of collaboration:

- 2.1 To organize at least Six Faculty Development Programs under AICTE - Margdarshan Scheme for faculty of mentee institutes over a period of three years by Walchand College of Engineering Sangli.
- 2.2 To organize at least 25 Guest Lectures by Walchand College of Engineering Sangli for faculty of mentee institutes under AICTE - Margdarshan Scheme over a period of three years.
- 2.3 To undertake collaborative R&D work/R&D Projects:
Self-Generated: Using Infrastructure / Laboratory facilities, faculty from respective fields to jointly undertake research Programme either at Mentee Institute or at Mentor Institute. For Technology / Patents so evolved joint rights of ownership will be mooted.
Industry-Sponsored: R&D/ Consultancy from industry to be jointly undertaken by faculty from Mentee Institute and Mentor Institute.
- 2.4 To do joint publications arising out of collaborative work.
- 2.5 To help and support in achieving NBA accreditation to the programs in mentee institutes and help them in carrying the SWOT analysis.
- 2.6 To guide and support faculty of mentee institutes to complete their Ph. D. in respective fields.
- 2.7 To support autonomous institutes to establish autonomy in their institutes
- 2.8 To help students of mentee institutes to increase their placement and to encourage them for higher education.

3. Mutual Obligation:

- 3.1 This collaboration shall not be exclusive to both parties and shall not disallow each party from having similar collaboration with others. Except as expressly stated in this MOU, there shall be no obligation on any party to compensate the other in any manner or to make any claim.
- 3.2 Each party shall meet the expenses between them as mutually agreed.
- 3.3 Each party shall respect the other's intellectual property (IP) and shall not use any trade name, trademark, symbol/logo, or designation belonging to the other, without prior written approval. No party shall hold out as an agent or representative of the other or create any liability for the other. The parties shall indemnify the other for breach of this clause.
- 3.4 Both parties shall maintain confidentiality about any information, course material, plans, discussions, strategies or any material, which shall be deemed to be confidential and marked accordingly. Any information, course material or the like in the public domain shall not be part of this commitment.

4. Limitation and Warranties

- 4.1 Each party shall ensure that the other is not put to any liability for any act of the respective party.
- 4.2 Each party represents that they have the full power and authority to enter into this MOU in general.

5. General

- 5.1 Both parties will designate a representative from its side who will be the primary point of contact on behalf of that party.

6. Commitments from Mentee Institute towards this MoU

- 6.1 Active participation of faculty in the workshops, seminars and activities arranged by WCES under Margdarshan scheme.
- 6.2 Efforts by faculty members in activity like joint publications, research and sharing resources
- 6.3 Readiness to bear registration fees (if any), travelling, lodging & boarding expenses of participating faculty from Mentee institute for the period of time spent in Mentor institution.
- 6.4 Investments for expenses in case of research activity and joint publications.

AMENDMENT TO THE MOU

No amendment or modification of this MOU shall be valid unless the same is made in writing by both the parties or their authorized representatives and specifically stating the same to an amendment of this agreement. The modification/ changes shall be effective from the date on which they are made/ executed unless otherwise agreed to.

ARBITRATION

In the events of any dispute or difference between the parties hereto, such disputes or differences shall be resolved amicably by mutual discussion of the Directors of the two institutes.

Now, therefore, for and in consideration of the foregoing premises the parties have signed the Memorandum of Understanding

In written whereof both parties put their hard seal on the day, month and year herein mentioned

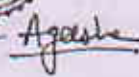
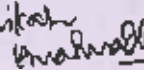
PARTIES


Director
Walchand College of Engineering
Vishrambag, Sangli

For and on behalf of
Administrative Council,
Walchand College of Engineering
Sangli



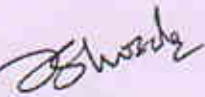

WITNESS

1. Dr. Mrs. A. A. Agashe 
2. Dr. V. B. Dhalmadkikar 

Dated: 01/10/2018


Director **Dr. D. N. MUDGAL**
Ashokrao Mane Group of Institutions,
Vathar Tarf Vadgaon, Tal. Hatkanangale,
Dist. Solapur - 416 122 (M.S.)
For and on behalf of
Academic Advisory Committee,
Ashokrao Mane Group of Institutions,
Vathar Tarf Vadgaon.

WITNESS

1. Dr. D. S. Bhosale 
2. Dr. S. A. Khot 

Dated: 01/10/2018



Details of MOU

Sr. No	MOU signed with Industry/Organization	Date of signing MOU	Purpose of MOU	Outcome/Beneficiaries
1	Walchand College of Engineering, Sangli	01/10/18	To organize Faculty Development Programs. To organize Guest Lectures by faculty of WCE Sangli. To undertake collaborative R&D work/R&D Projects.	Faculty and students of Mechanical Engineering

Activities under MOU

Guest lecture	Faculty and students of Mechanical Engineering
	

Name of Student. : Rohit Rajendra Vibhute.
Year of Engineering and Branch : Third Year, Electronics and tele. Engineering.
Project Title : ML and AI in Renewable Energy Sector
Supervisor/ Mentor Details : Prof. Stanislav Eroshenko and Alexandra
Supervisor/ Mentor Details : <https://wintersummeruni.urfu.ru/en/about-professors/>



Labs Details: Machine Learning Algorithms (Sklearn), Python, Pandas, Jupyter Notebook.

Project Description:

There was dataset of a power plant with different attributes given. First, we did some pre – processing on it. This pre – processed data was then divided into training and testing dataset. And then the training dataset was given to the Random Forest Regressor Algorithm and model was trained and then testing was performed to predict data. The previous mentioned process was followed 3 times first to predict solar irradiation at atmosphere, second to predict solar irradiation at earth surface and then to predict the power output. And at last we test our model to predict it for different weather such as sunny, rainy, cloudy and partly cloudy.

Experience about Fellowship Program:

The fellowship is the chance to build up future profession prospects. Experience and opportunities are key points. Meeting individuals from different specialized and social background gives you the happiness to work with them and explore new things. People will recognise every quality; the person has and will give you task accordingly. They know how to extract the true talent out of every student. Relationship between student and teacher is always mutual. The accommodation, library, and aquatics facilities provided by the university is very amazing. Cooking food with everyone is an amazing experience. Mentorship provided by the foreign professors is a golden opportunity which everyone should take advantage of that opportunity to learn something new.

Project Partners: Diksha Dayma, Shivani Dharmadhikari, Sudarshan Waydande, Manish Rane, Rohan Bhosale, Shubham Shelar.

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Signature of Student

Machine Learning Algorithms for Power Transformers Technical State Assessment

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Abstract—The paper addresses the problem of operated power transformers actual technical state identification by using existing technical diagnostics retrospective data. The initial data set was composed of results of transformer oil analysis, loading conditions, infrared snapshots and aggregated characteristics of the technical state of bushing, surge arrester and cooling system. Retrospective data of technical diagnostics was used. Technical state estimation process was divided on several steps and was performed by Python. First step was feature selection, where the features with low meaning in terms of the problem formulation are ejected. The second step is the processing of missing data to increase the dataset. KNN algorithm was used to restore missing values. The final step is learning transformer technical state classifier based on random forest tree approach. The results of power transformer state's classification demonstrated relatively high accuracy of identification.

Keywords — machine learning, power transformer, technical state, classification, data filtration and recovery

I. INTRODUCTION

Power transformer is one of the key elements in the electrical grid, which ensures the connectedness of grids with different voltages. Ensuring the stability and reliability of the electric power system (EPS) to a large extent depends on the technical state of power transformers and especially autotransformers. The transformer failure has a significant impact on the EPS operating mode when the disturbance can lead to the following cases:

- grid element overloads, equipment overloading control automation (EOCA) operation, grid division, cascade accidents;
- voltage reduction in control points, undervoltage control automation (UCA) operation, consumer tripping in a particularly difficult case;
- steady-state instability, centralized emergency control automation or local stability control automation (SCA) operation, consumers or

generation tripping in accordance with the typed or set tables of control actions;

- cascade accident evolution in case of the transformer circuit breaker failure and the operation of the circuit-breaker failure protection (CBFP).

Also, the transformer technical state as a business asset, and consequently, the equipment maintenance strategy (based on it) has a significant impact on the business processes of the electric power company.

Thus, the power transformers technical state assessment is a key issue both from a technical and economic points of view.

II. MODERN APPROACHES TO THE TRANSFORMERS TECHNICAL STATE ASSESSMENT

The technical state assessment issue of power transformers has been widely considered in studies that can be classified according to the following gradation of methods:

1. expert knowledge to weigh test results [1, 2];
2. conventional statistical approaches [3-7];
3. fuzzy logic theory [8-10];
4. reliability theory [11];
5. artificial intelligence methods [12-22];
6. health index (HI) table [23];
7. multi-feature factor analysis [24];
8. wavelet network analysis [25];
9. thermal aging theory [26];
10. mixed mathematical and expert approaches [27].

One of the first methods for a comprehensive technical state assessment of power transformers is the expert knowledge application to assess testing results.

The research [1] presents a methodology for the power transformers technical state assessment based on testing data. The initial data set contains:

- dissolved gas analysis (DGA);