Federal University Oye-Ekiti
Department of Mechatronics Engineering
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© Department of Mechatronics Engineering,
Faculty of Engineering, Federal University Oye-Ekiti, Nigeria
PMB 373, Oye-Ekiti, 371101, Ekiti State
Prof. (Engr.). Olugbenga Oludolapo AMU
Dean
Faculty of Engineering
Dr. (Engr.). Matthew Oluwole AROWOLO
Ag. Head
Department of Mechatronics Engineering
### Officers of the Faculty

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prof. (Engr.). Olugbenga Oludolapo AMU</td>
<td>Dean Faculty of Engineering</td>
</tr>
<tr>
<td>2</td>
<td>Dr. (Engr.). Ibrahim Adepoju Adeyanju</td>
<td>Deputy Dean Faculty of Engineering</td>
</tr>
<tr>
<td>3</td>
<td>Mr. A.A. Ayegbusi</td>
<td>Faculty Officer</td>
</tr>
</tbody>
</table>

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<tr>
<th>S/N</th>
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<tbody>
<tr>
<td>1</td>
<td>Dr. (Engr.). Matthew Oluwole AROWOLO</td>
<td>Ag. Head Department of Mechatronics of Engineering</td>
</tr>
<tr>
<td>2</td>
<td>Mr. O.K. Ejike</td>
<td>Departmental Admin Officer</td>
</tr>
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<td>Course Description – 100 Level</td>
</tr>
<tr>
<td>200 Level</td>
<td>First Semester – 200 Level</td>
</tr>
<tr>
<td>300 Level</td>
<td>Second Semester -100 level</td>
</tr>
<tr>
<td>400 Level</td>
<td>Course Description – 200 Level</td>
</tr>
<tr>
<td>500 Level</td>
<td>First Semester – 200 Level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Description - 300 Level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester – 300 Level</td>
<td></td>
</tr>
<tr>
<td>Second Semester – 300 Level</td>
<td></td>
</tr>
<tr>
<td>Course Description-400 Level</td>
<td></td>
</tr>
<tr>
<td>First Semester – 400 Level</td>
<td></td>
</tr>
<tr>
<td>Second Semester – 400 Level</td>
<td></td>
</tr>
<tr>
<td>Course Description-500 Level</td>
<td></td>
</tr>
<tr>
<td>First Semester – 500 Level</td>
<td></td>
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<tr>
<td>Second Semester – 500 Level</td>
<td></td>
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FOREWORD

This handbook provides useful course information on the B.Eng. in Mechatronics Engineering degree programme at the Federal University Oye-Ekiti. The vision and mission of the University are presented, in addition to the philosophy and objectives of Mechatronics Engineering programme. The courses required for the award of the degree and their respective outlines are presented in this handbook.

The department of Mechatronics Engineering has well trained and highly experienced academic staff as well as very competent technical and administrative staff. In general, the department provides an excellent and a congenial atmosphere for teaching, learning and research.

The department is composed of three academics groups which define the major thrust of work in the department, namely: Computer Aided Engineering Group, Process Automation, Artificial Intelligence and Robotics Group. Students learn to create innovative products through the application of Mechatronics in ways that are economically viable and environment friendly.

The department focussed on providing the students with the skills that will enable them design and manufacture reliable, economical, and versatile products.

Current students, Prospective students, Prospective academic and technical staff as well as the general public will find this book very valuable.

Dr. (Engr.). Matthew Oluwole AROWOLO

Ag. Head

Department of Mechatronics Engineering

October, 2019
1.0. Name of the Programme

Bachelor’s Degree in Mechatronics Engineering

2.0. History of The Programme

The Department of Mechatronics Engineering started in July 25, 2012 (2012/2013 academic session) with a vision to become one of the best in the nation in the near future. The philosophy of the department is to marry theory with practical and hence produce innovative graduates who will be empowered to strengthen the weak or virtually non-existent manufacturing base of Nigeria in particular and Africa in general. This philosophy is the bedrock of the Mechatronics Engineering undergraduate programme of Federal University Oye-Ekiti. The 5-year programme of is hosted by the Faculty of Engineering in the Ikole Campus of Federal University Oye-Ekiti.

2.1. About Federal University Oye-Ekiti

Federal University Oye-Ekiti (FUOYE) is one of the nine Universities established in February 2010 by the Government of Federal Republic of Nigeria to prepare the next generation of skilled and ethical professionals by providing robust curricula across and within disciplines to foster economic development activities that are innovative, research-driven, integrating cutting-edge technology in multidisciplinary and disciplinary research.

• The Vision

The Motto of the University is Innovation and Character for National Transformation. The strategic vision of the University is to become an academic giant, the pace-setter among universities in the Third World, in the quality of its scientific research, the level of its innovative teaching, and the robustness of its community service.

• The Mission

As her mission, FUOYE aspires to become an institution of first choice recognised for providing critical opportunities for student success; acknowledged as a primary, regional and global resource for entrepreneurial educational and best practices in mining and farming technologies; and valued as a university where there are faculty, students, and professional staff who are active in integrating cutting-edge technology in multidisciplinary and disciplinary research.

The mission of the university includes:

• To advance the community of learning by engaging in scientific research, humanistic scholarship, multidisciplinary research, entrepreneurship and technological integration

• To provide a robust and high-quality educational experience for students in a diverse learning environment while promoting the values and indigenous learning that is responsive to the needs of our society

• To create an institution that values and prepares students to lead lives of personal integrity and civic responsibility in a global society
To prepare the next generations of skilled and ethical professionals by providing robust curricula across and within disciplines that prepare graduates to be research minded and able to compete effectively in diverse world market.

To advance best practices in farming and mining, foster economic development activities that are innovative, research-driven, and will result in a better quality of life for Nigerians.

3.0. **Philosophy and Objectives of the Programme**

3.1. **Programme Philosophy**

The philosophy is to produce skilled manpower who understand the fundamentals and principle of Mechatronics Engineering discipline and who can generate technologies for the nation’s development and technological advancement. Such knowledgeably professional manpower has to be produced in an atmosphere with the widest possible human and material resources, through the adoption of effective techniques of instruction, and exposure to the actual practice of engineering. Consequently, there are opportunities for formal training at the Undergraduate and postgraduate levels for the acquisition of basic and higher degrees respectively. These training programmes are mounted through classroom instruction, laboratory practical, field demonstration, and workshop practice.

3.2. **The Objectives of the Programme**

The general aims and objectives of Mechatronics Engineering Programme are in consonance with the realization of national needs and aspirations vis-à-vis industrial development and technological emancipation. The benchmark statements give the minimum academic standards required to meet these needs and to produce graduates in Mechatronics Engineering with sufficient academic background and practical experience who would be able to rise to the challenges of a developing economy. Therefore, Mechatronics Engineering graduates must be resourceful, creative, knowledgeable and able to perform the following functions:

- Design engineering projects and supervise their construction.
- Design and make components, machines, equipment and systems.
- Design and develop new products and production techniques in industries.
- Install, operate, maintain and service complex engineering systems so that they can perform optimally in our environment.
- Adapt and adopt exogenous technology in order to solve local engineering problems.
- Exercise original thought, have good professional judgement and be able to take responsibility for the direction of important tasks.
- Apply management skills to solve a wide scope of management and organization problems related to any Engineering set up.
- Improve on indigenous technology to enhance local problems solving capability.
- Communicate Engineering concepts and ideas by oral, written and graphical means and to assimilate, interpret and evaluate information from a wide range of sources including IT based systems; and
3.3. **Practical Training**

Relevant Work Experience through Students Industrial Work Experience Scheme (SIWES). This is a central feature of education at FUOYE and an integral part of undergraduate degree programmes. Aside the laboratory, workshop, field practical and field trips, Students from the B.Eng. Mechatronics Engineering programme are also expected to undertake compulsory SWEP and SIWES training. This practical training is sub-divided into the following areas, as shown in the Table below:

<table>
<thead>
<tr>
<th>S/N</th>
<th>Training Programme</th>
<th>Course Code</th>
<th>Period</th>
<th>Duration (weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Students’ Work Experience Programme I (SWEP I)</td>
<td>ENG200</td>
<td>Long vacation of 200 level</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Students’ Work Experience Programme II (SWEP II)</td>
<td>ENG300</td>
<td>Long vacation of 300 level</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Students’ Industrial Work Experience Scheme (SIWES)</td>
<td>ENG400</td>
<td>Second Semester and Long vacation of 400 level</td>
<td>24</td>
</tr>
</tbody>
</table>

**Total** 40

3.4. **Career Opportunities**

Graduates with a Mechatronics Engineering degree therefore have opportunities of getting employment in a wide range of engineering based such as in production and manufacturing industries i.e. pharmaceutical, cement, breweries, chemical, automotive, aerospace, food and beverages, printing, textile, refrigeration and air-conditioning, oil and gas, etc. They can also find employment in defence industries and public buildings. Within these industries, Mechatronics Engineering graduates may be design engineers, software engineers, project planners, product designers or project managers.
4.0. Entry Requirements

4.1. UTME Entry Requirements:

Admission to 100 levels is through UTME in subjects such as English Language, Mathematics, Physics, and Chemistry. To be eligible for admission, candidate must have Ordinary Level of General Certificate of Education (GCE), Senior School Certificates Examination (SSCE) or its equivalents with at least five credit passes, including English Language, Mathematics, Physics, Chemistry and one science or social science subject at not more than two (2) sittings. The Department accepts result from only Government approved examination bodies such as WAEC, NECO, and NABTEB or its equivalents.

4.2. Direct Entry Requirements

To qualify for placement into the degree programme through Direct Entry to 200 Level, candidates must first satisfy ‘O’ level requirements as applicable to UTME candidates and they are expected to meet the following requirements:

(i) Obtain two ‘A’ level passes from Physics, Chemistry and Mathematics.
(ii) Obtain National Diploma (ND) Upper Credit in Mechatronics Engineering or Mechatronics Engineering.

5.0. Admission and Registration

5.1. Admission

Applicants follow the National Universities Commission (NUC) and the FUOYE admission procedures. Prospective students must possess the relevant credits at O’ Level and pass both the UTME and Post-UTME screening exercises. Students must pay all the necessary fees and must be of good character. After due process of screening at the faculty and departmental offices, the candidate(s) will be provided with the list of courses for registration purposes.

5.2. Registration of Courses

Courses for the session are registered on-line at the beginning of the session. In addition, a student is required to go to his/her level adviser after the on-line registration in order to complete the registration process. Failure to register before the stipulated deadline given by the university may result in loss of that session or voluntary withdrawal from the programme. A student cannot re-register for a course already passed.

5.3. Duration of Programme

This programme is essentially a 5 or 4 years programme. Candidates admitted with O’level certificates or equivalent with UTME spend five (5) years and those admitted with ordinary diplomas spend four (4) years, starting at the second year of the programme.

5.4. Dropping of Courses

A student who wishes to drop a course, after the registration deadline, must do so at least six weeks to the commencement of examinations in the semester. This is done by making the
request in writing, stating why he/she wishes to drop the course(s), to the Vice Chancellor through the Dean of Faculty and Head of Department. Such requests typically pass through the department and faculty boards before being collated by the Academic Affairs unit for University Senate approval.

6.0. Graduation Requirements

In order to graduate from the 5-year Bachelor of Engineering (B.Eng.) degree programme in Mechatronics Engineering, students must have:

(i) passed all core/compulsory courses and electives,
(ii) accumulated a minimum of 200 Credit Units if he/she was admitted into the Department through UTME and a minimum of 156 Credit Units if the admission is through Direct Entry into 200 Level; within the minimum period of five (5) and four (4) years and maximum of seven (7) and six (6) years, respectively.
(iii) obtained a CGPA of not less than 1.50;

Table 1: The Distribution of course credits by levels of study for the programme is as shown below.

<table>
<thead>
<tr>
<th>Level</th>
<th>General Studies/Entrepreneur</th>
<th>Basic Sciences</th>
<th>Basic Engineering</th>
<th>Core Courses</th>
<th>Electives</th>
<th>SIWES/SWEP/Project</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>5</td>
<td>16</td>
<td>2</td>
<td>–</td>
<td>–</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>5</td>
<td>14</td>
<td>2</td>
<td>–</td>
<td>–</td>
<td>21</td>
</tr>
<tr>
<td>200</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>3</td>
<td>–</td>
<td>17</td>
<td>–</td>
<td>–</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>3</td>
<td>–</td>
<td>19</td>
<td>–</td>
<td>–</td>
<td>22</td>
</tr>
<tr>
<td>300</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
<td>2</td>
<td>20</td>
<td>–</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
<td>3</td>
<td>20</td>
<td>–</td>
<td>23</td>
</tr>
<tr>
<td>400</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>20</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>500</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>–</td>
<td>3</td>
<td>–</td>
<td>13</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>11</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19</td>
<td>30</td>
<td>45</td>
<td>84</td>
<td>10</td>
<td>12</td>
<td>200</td>
</tr>
</tbody>
</table>
7.0. Instructional Methods and Grading System

7.1. Grading of Courses

The rating of grades obtained in a course in terms of credit points per load unit is as stated in the following table.

<table>
<thead>
<tr>
<th>Level of Performance</th>
<th>Grade</th>
<th>Rating (Credit Points Per Unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-100%</td>
<td>A = Excellent</td>
<td>5.0</td>
</tr>
<tr>
<td>60-69%</td>
<td>B = Very Good</td>
<td>4.0</td>
</tr>
<tr>
<td>50-59%</td>
<td>C = Good</td>
<td>3.0</td>
</tr>
<tr>
<td>45-49%</td>
<td>D = Satisfactory</td>
<td>2.0</td>
</tr>
<tr>
<td>40-44%</td>
<td>E = Poor</td>
<td>1.0</td>
</tr>
<tr>
<td>0-39%</td>
<td>F = Failure</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Based on the above, a student who obtains a grade of ‘A’ in a 4-unit course will score 20 (4×5) credit points and another who obtains a grade of C will score 12 (3×4) credit points. A credit point is thus the product of the course units and the rating in each course. The sum of all credit points for a semester is the Total Credit Point (TCP).

As an illustration, a student took 4 courses of 5 units each and obtained C, B, F, D grades respectively. The TCP will be 5×3 + 5×4 + 5×0 + 5×2 = 45. The Grade Point Average (GPA) is the TCP divided by the Total Credit Units (TCU). Hence, this student has a GPA of 45 divided by 20, which is 2.5.

The highest GPA that can be earned is 5.0 and the lowest is 0 (zero). The Cumulative Grade Point Average (CGPA) is the summation of the TCP for all semesters divided by the summation of TCU’s for the semesters. Like the GPA, the CGPA obtained range from 0 to 5. The CGPA is calculated from all courses taken, including first year (100 level). A student whose CGPA is below 1.50 is placed on probation for the next two semesters after which he/she is advised to withdraw or transfer to another department, if CGPA remains below 1.50.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Total Credit Points (TCP)</td>
<td>This is the sum of the products of the course units and rating in each course for a particular single semester</td>
</tr>
<tr>
<td>ii</td>
<td>Total Credit Unit</td>
<td>This is the total number of course units registered by a student in a particular semester. It is summation of credit units</td>
</tr>
</tbody>
</table>
Grade Point Average (GPA)

This is total credit points (TCP) divided by total credit units (TCU). The highest GPA that can be earned is 5.0 and that is when a student has earned grade “A” in every course taken during the semester.

Cumulative Credit Point (CCP)

This is the summation of total credit points across all semesters that a student registered till date.

Cumulative Credit Unit (CCU)

This is the summation of total course units across all semesters that a student registered till date.

Cumulative Credit Point Average (CGPA)

This is neither the summation nor average of GPAs for all semesters. Rather, it is summation of TCPs for all semesters (CCP) divided by summation of all TCUs (CCU). CGPA obtainable ranges from 0 - 5.

<table>
<thead>
<tr>
<th>Class</th>
<th>Range of CGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Class Honours</td>
<td>4.50 – 5.00</td>
</tr>
<tr>
<td>Second Class Honours (Upper Division)</td>
<td>3.50 – 4.49</td>
</tr>
<tr>
<td>Second Class Honours (Lower Division)</td>
<td>2.40 – 3.49</td>
</tr>
<tr>
<td>Third Class Honours</td>
<td>1.50 – 2.39</td>
</tr>
</tbody>
</table>

7.2. Teaching Methods

Students are taught through arrange of methods including lectures, tutorials, laboratory practical sessions, assignments, term papers, seminar presentations, prescribed self-study, design projects, group work among others.

7.3. Language of Instruction

The language of instruction is English Language.

7.4. Mode of Assessment

Performance in a course is measured in terms of;

a) The result of prescribed theory and practical examinations and/or
b) Assessment of other deliverables such as essays, assignments, laboratory and seminar report as might be prescribed for each course.
7.5. **Scoring system**

The Scoring System adopted is as stipulated by the National Universities Commission. Under this system, marks are allocated for continuous assessment (typically 40%) as well as Examinations (typically 60%); however, laboratory practical courses have no written final examinations. Continuous assessment shall be done through assignments, tests and practical exercises. (a) Scores from continuous assessment shall normally constitute 30-40% of the final marks for courses which are primarily theoretical. (b) For courses which are partly practical and partly theoretical, scores from continuous assessment can constitute 50% or more of the final marks. (c) For courses that are entirely practical, continuous assessment shall be based on a student’s practical work or reports and shall constitute 100% of the final marks.

<table>
<thead>
<tr>
<th>Description</th>
<th>Scoring (Typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Assessment</td>
<td>40%</td>
</tr>
<tr>
<td>Examination</td>
<td>60%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>

### 8.0. Examination

#### 8.1. Examination Malpractice

A student who is involved in University Examination malpractice or violates examination regulation shall be referred to the University disciplinary committee which will recommend appropriate disciplinary actions.

#### 8.2. Absence from Examination

A student who is absent from a course examination, after having registered for the course, without approval of a written request to drop the course will receive a grade of 0(F) at the end of the semester. Exemptions may be granted only on substantiated or on compassionate grounds as recommended by the Faculty Board and approved by University Senate.

#### 8.3. Final Year Undergraduate Project

Students are expected to submit their final year (B.Eng.) project reports to the department through their respective supervisors. A preliminary report is submitted during the first semester of the final year where first 2-3 chapters (Introduction, Literature Review and Methodology) are assessed in writing together with an oral defence. The first semester assessment contributes 30% towards the overall score of the project (MTE599) which is registered in second semester as a 6-units course. Similarly, the complete report is assessed in writing towards the end of the second semester with an internal oral defence before a panel of at least four members of staff headed by Senior lecturer or above from the department. An assessment by an appointed external examiner is also organised and can be done simultaneously during the internal oral defence and assessment. Every project is thus assessed by the supervisor, internal assessor(s) and the external examiner.

#### 8.4. Setting Examination

Each lecturer sets examination for the course he/she teaches and such questions are vetted by
Quality Assurance team, who has the responsibility of moderating the questions with the cooperation of the lecturer. However, for final year examinations, the set questions are sent to the University appointed external examiner to further vet, write and submit a report to the Vice-Chancellor regarding his finding(s). The Department is also obliged to accept the modifications to the questions. These apply only to semester examinations and not test or mid-semester examination. Also, the external examiner only vet’s questions for final year students.

8.5. Conduct of the Examination

All semester examinations are conducted by the University, including the selection and distribution of invigilators and examination venues under the supervision of a University appointed Chairman of Examination Committee whose members are selected by the Faculty.

8.6. Evaluation Schemes

After a lecturer has graded the scripts, he submits them to the HOD. The HOD then ensures that the scripts are vetted by quality assurance team. This applies to all courses at all levels including the final year. The examiner ensures that the marking scheme and model answers are forwarded to the HOD as soon as the question papers are submitted. Once the grading process is completed, a meeting of the Departmental Board of Examiners with the Head of Department as chairman is convened. The board will discuss the results, ensuring that probity, integrity and rule of competence have been observed in grading the scripts. Consensus is the rule at the board of examiners’ meeting and where this is not possible, the matter is passed on to the Faculty Board of Examiners.

8.7. Faculty Board of Examiners

The Faculty Board of Examiners is the forum in which all examiners in the faculty as members, meet and ensure that all departments comply with Senate regulations on university examinations. The result is put in the full glare of the faculty board of studies (comprising the Dean, Deputy Dean, all HODs and their Exam officers) and deliberated upon. The decision of the Faculty Board must be complied with and where this is not so the issues are moved to Senate for final determination.

8.8. University Senate

Results go to Senate in summary form and there the results are electronically presented analytically and issues that escaped either the department and/or faculty are thrashed out and resolved.

8.9. Moderation Scheme

Internal and External moderation of the degree examinations are ensured as follows:

i. Examinations (Undergraduate): After setting the questions, the lecturer submits them for moderation and advice by the quality assurance team; subsequently the lecturer modifies the questions and they are from that point placed in the custody of the HOD until the time to be produced for the examination.

ii. For final degree examinations, as soon as the questions have been internally moderated, a secure arrangement is made to take them to External Examiner for vetting moderation.
8.10. Correction of Results

Results are only corrected after the Senate has given approval. The HOD collects and collates students result complaints in form of a written request through the departmental level advisers. The lecturer is required to endorse any necessary corrections together with the HOD and, the Dean of Faculty. The university Senate Examination must the approve the student result correction, before it is updated on the student’s results database.

8.11. Quality Assurance

To maintain high quality, the course materials are updated with current information. The Head of Department and his/her quality assurance team ensure that members of the Department work effectively to deliver the possible highest quality academic programme. The quality assurance team of the department assesses the following for each course:

- Course questionnaires and teaching feedback
- Internal moderation of tests and examination questions.
- Course and programme reviews.
- External examiners’ report.
- Annual academic evaluation.
- Industrial inputs to course design.
- Vetted marked answer scripts.

8.12. Issuance of Results

Results are only issued after the Senate has given approval. In other words, no student is expected to have any knowledge of the examination results until after the Senate meeting which considers such results.

8.13. Policy on Academic Standards and Academic Atmosphere

Lecturers are encouraged to have office hours within which students can come to ask questions related to the courses they are teaching. Such office hours must be publicized in class as well as pasting a copy on their office doors. Lecturers are also encouraged to plan for adequate question time during classes. This policy enables the academic atmosphere to be cordial while encouraging freedom of expression by staff and students.
9.0. Curriculum

The curriculum which is compliant with the Minimum Benchmark Academic Standard of the National Universities Commission (NUC-BMAS) is a five-year programme outlined as follows.

COURSE OUTLINE

100 Level

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*Student chooses one out of the two elective courses
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***Course Registration in 400 Level (2nd Semester)***

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**TOTAL** 22  **TOTAL** 23

Registration in 400 Level (2nd Semester)

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**TOTAL**: 22

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*Handbook | Department of Mechatronics Engineering*  
*23*
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<tr>
<td>MTE599</td>
<td>Project - II</td>
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**TOTAL** 20

**SECOND SEMESTER**

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<th>Code</th>
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<tr>
<td>MTE513</td>
<td>Power Electronics and Devices</td>
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<td>MEE517</td>
<td>Renewable Energy Systems</td>
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<td>MTE517</td>
<td>Lean Production Management and Industrial Logistics</td>
<td>E</td>
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<td>MTE505</td>
<td>Control Engineering -III</td>
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<td>MTE509</td>
<td>CAD/CAM &amp; Engineering IV</td>
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<td>MTE515</td>
<td>Mobile Robotics</td>
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<td>ENG501</td>
<td>Law &amp; Management</td>
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**TOTAL** 21

*Students are to registered for any two elective courses in each semester*
Course Synopses

Course Description – 100 Level
First Semester – 100 Level

CHM101 General Chemistry I (3 Units)

CHM107 General Chemistry Practicals I (2 units)
A course designed to illustrate the principle covered in lecture course of CHM 101 Viz; Measurements using measuring Cylinder and use of the Top loading Balance, Data treatments; Volumetric Analysis: titration of strong acid against strong base/weak base, Standardization of Potassium tetraoxomaganate, Ethanoic acid; Back titration.

CPE101 Computers & Computing for Engineers – I (2 Units)
System Architecture; Linux Installation and Package Management; GNU and Unix Commands Devices, Linux File systems, File system Hierarchy Standard; Shells, Scripting and Data Management; User Interfaces and Desktops; Administrative Tasks; Essential System Services; Networking Fundamentals; Security

GST101 Communication in English I (2 Units)
Communication in English will focus on two languages skills: listening and speaking as word classes; Listening skills: listening strategies, note-taking; Speaking skills: segmental consonants, vowels; supra-segment-stress, intonation; dictionary and pronunciation skills in English; grammatical structures and communication: nouns, verbs, pronouns, adverbs, prepositions and adjectives in communication, English, sentence types, punctuation marks, vocabulary development, common errors, figures of speech, and effective communication, spelling.
Students are to read two recommended texts.

GST103 Use of Library and ICT (2 Units)
Introduction to Library and conceptual clarification; Types of Libraries; Library organisation
Serial and Research departments; Readers services division and reference collections. Library rules and regulations; Library Automation; Hands on online databases such as TEEAL, MIT Courseware, HINARI, OARE, AGORA, etc

The basic concepts of processes, programs and the components of an Operating System; Basic knowledge of computer hardware; Demonstrating knowledge of Open Source Applications in the Workplace as they relate to Closed Source equivalents; Navigation systems on a Linux Desktop and where to go for help; A rudimentary ability to work on the command line and with files; The use of basic command line editor.

**GST105 Introduction to Entrepreneurship**  
(2 Units)

History and background of entrepreneurship; Theories of entrepreneurship thought; Definition of entrepreneurship and management; Entrepreneurship theory and Nigeria experience; Approaches to entrepreneurship; psychological approach, sociological approach and distinctive competence. Understanding the entrepreneurship mindset; Business opportunities profile; Entrepreneurship case analysis/training workshop.

**MTH101 Elementary Mathematics I**  
(3 Units)

( Elementary Set Theory and Numbers)

Elementary set theory; Subsets; Union; Intersection; Complements, Venn diagrams. Real numbers: integers, rational and irrational numbers, mathematical induction, real sequences and series, theory of quadratic equations, binomial theorem. Complex numbers: algebra of complex numbers; the Argand Diagram. Demoivre’s theorem, nth roots of unity. Circular measure, trigonometric functions of angles of any magnitude, addition and factor formulae.

**MTH103 Elementary Mathematics III**  
(3 Units)

( Vectors, geometry and dynamics)


**PHY101 General Physics I**  
(3 Units)

(Mechanics, Thermal Physics and Waves)

Space and Time, frames of reference, Units and dimension, kinematics; Fundamental laws of mechanics, Statics and dynamics; Galilean invariance; Universal gravitation, work and energy; rotational dynamics and angular momentum, conservation laws.
PHY103  General Physics II  (2 Units)
(Electricity, Magnetism and Modern Physics)
Electrostatics, Conductors and Currents, dielectrics; magnetic fields and induction, maxwell’s equations, electromagnetic oscillations and waves; Applications.

PHY107  Practical Physics I  (2 Units)
This introductory course emphasizes qualitative measurements, the treatment of measurement errors, and graphical analysis. A variety of experimental techniques will be employed. The experiments include studies of meters, the oscilloscope, mechanical system, electrical and mechanical resonant systems, light, heat, viscosity e.t.c covered in PHY 101, PHY 102, PHY 103.

Second Semester -100 level

CHM102  General Chemistry II  (3 Units)

CHM108  Practical Chemistry II  (1 Unit)
A course designed to illustrate the principle covered in lecture course of CHM 102 Viz; Test for Organic functional groups: Unsaturated hydrocarbons, alcohols, aldehydes and ketones, carboxylic acids, Ester, Phenol. Determination of melting point; determination of suitable solvent for recrystalization; separation by distillation.

GST102  Communication in English - II  (2 Units)
In communication in English II, two language skills, writing and reading in communication will be emphasized. Writing: getting started, strategies in writing, planning a good writing, parts of an essay, paragraph development, transitional devices, types of writing – definition, narrative, explanatory, argumentative, instructions; Report writing, its features, types, technical and non-technical reports; technical type: laboratory, project report eg dissertation or thesis writing; non-technical report: term paper; Reading skills: reading and literary appreciation – literature and its features, types, elements and relevance; genres of literature; Application of the literary features and genres to three recommended reading texts on the three genres of literature. A review or critique of a specified txt must be submitted by each student shortly before the end of the semester.
GST106  Evaluating Opportunities and Business Concepts  (1 Units)

GST108  Government, Society and Economy  (2 Units)
This course looks at the evolution of state as a political unit and the role of individual in the development of a state (the organization and structure of government, evolution of the state, political philosophy), socio-political economy of the society (system of government, the rule of law, resources and resource system, social mobility and social change), the influence of government in the management of the society (environment and culture, social stratification).

GST110  African Culture and Civilisation  (2 Units)
This course covers the study of African cultural history and characteristics, arts in pre-colonial times. It also at the evolution of Africa as a political unit; phenomenon of indigene/settlers and its conflicting outcome as well as traditional concept of trade, social justice, individual and national development. Moreover, peculiar norms and values, national attitudes and conducts (cult activities and related vices), reorientation, moral obligations of citizens, national values and environmental problems will be discussed. Particular attention will be on Nigerian local cases.

MEE102  Technical Drawing  (1 Unit)
Introduction to engineering drawing as a means of communication, use of drawing instruments, drawing paper format, types of lines and their uses in engineering drawing, plane geometry, circles and tangents, conic sections, Loci (cycloid, epicycloids, hypocycloid, involute, Archimedean spiral, Eclipse, hyperbola, parabola, including approximate method), theory of projection, parallel projection, orthographic projection, axonometric projection, perspective projection multi-view representation, 1st and 3rd angle projection, isometric drawings, oblique drawings, Freehand sketching.

MTH102 Elementary Mathematics II  (3 Units)
Calculus: Function of a real variable, graphs, limits and idea of continuity. The derivative, as limit of rate of change. Techniques of differentiation. Extreme curve sketching; Integration as an inverse of differentiation. Methods of integration, Definite integrals. Application to areas, volumes (including approximate integration), and trapezium and Simpson’s rules.
**MTH104 Elementary Mathematics IV**  
(3 Units)  
(Elementary Algebra and Trigonometry)  

**PHY102 General Physics III**  
(3 Units)  
Molecular treatment of properties of matter, Elasticity; Hooke's law, Young's shear and bulk moduli. Hydrostatics; Pressure, buoyancy. Archimedes’ Principles. Hydrodynamics; Streamlines, Bernoulli and continuity equations, turbulence, Reynold's number; viscosity; laminar flow, Poiseuille’s equation. Surface tension, adhesion, cohesion, capillarity, drops and bubbles. Temperature; the zeroth law of thermodynamics; heat: gas laws; laws of thermodynamics; Kinetic theory of gases. Applications.

**PHY108 Practical Physics II**  
(1 Unit)  
This introductory course emphasizes quantitative measurements, the treatment of measurement errors and graphical analysis. A variety of experimental techniques will be employed. The experiments include studies of meters, the oscilloscope, mechanical system, electrical and mechanical resonant systems, light, heat, viscosity e.t.c covered in PHY101, PHY102, PHY103

**Course Description – 200 Level**

**First Semester – 200 Level**

**ENG201 Engineering Mathematics - I**  
(3 Units)  

**ENG203 General Engineering Laboratory - I**  
(3 Units)  
Laboratory investigations and report submission on selected experiments and projects drawn from introduction to applied mechanics, thermodynamic, materials science and workshop technology courses.
ENG205  Engineer in Society  (1 Unit)
Philosophy of Science; History of Engineering and Technology - Introduction, career, who is an engineer, basic skills and requirements in engineering, career development in engineering, the needs of the society, developmental needs of the third world countries; Safety in Engineering and Introduction to Risk Analysis; The Role of Engineers in Nation Building - the engineer role in Nigerian local content initiative, the development of different branches of engineering, engineering and the different specializations, Engineering ethics and conducts, the engineers role in vision 2020, public interest and the professional, the engineers code of practice, design specifications and standards; Lectures from invited Professionals.

GST203  Feasibility Plan and Investment Decision  (1 Unit)

GST205  Introduction to Philosophy, Logic and Human Existence  (2 Units)
The course is designed to equip students with the capacity to adequately understand the concept of human existence (meaning, methods and application of Philosophy, Philosophical foundation of Human existence) and man’s role in the affairs of life (the values of Philosophy to man society, ethics and human conduct, the significance of Philosophy, Culture and Religion to national development. It aims at providing ways and means through careful reflection, purposeful thinking and reasoning (Philosophy and Education, Philosophy of language), a useful foundation for a meaningful life (The nature of logic, the meaning, structure and types of arguments, fallacies and the use of truth table, symbolizing statements and argument in prepositional logic)

MEE201  Workshop Technology - I  (1 Units)
Elementary introduction to types and organisation of engineering workshop, covering jobbing, batch, mass production. Engineering materials: their uses and properties. Safety in

General principles of working of standard metal cutting machine tools. Invited lectures from Professionals.

MEE207 Engineering Drawing - I (1 Unit)
Use of draughting instruments, lettering, dimensioning, layout. Engineering graphics - Geometrical figures, comics; Machine drawing, introduction to assembly drawing, working drawings, Pictorial, freehand sketching, conventional practices. Graphical calculus and applications development, intersection of curves and solids; Projections - lines, planes and simple solids. Principle of Tangency, Orthographic projection, Isometric projection, Oblique projection (with harder examples), Auxiliary Views, Sectioning, True length of Lines and shapes, Interpenetration of Solids, Development of Surfaces. Simple examples such as threaded fasteners.

MEE203 Applied Mechanics (2 Units)


MEE205 Thermodynamics - I (2 Units)
Basic concepts, energy and energy conversions and surroundings, temperature of scales. Quantitative relations of zeroth, first, second and third laws of thermodynamics and definitions and laws. The first Law of thermodynamics, applications to open and closed
systems. Second law of thermodynamics and Heat Cycles. The steady State flow equation (Bernoulli’s Equation) and applications. The ideal gas, Heat and Work. Use of steam tables and charts

MTE201  Computer Aided Engineering - I  (2 Units)
C Programming: Introductory concepts, C fundamentals, operators and expression, data input and output, preparing and running a complete C program, control statements, functions, program structure, arrays, pointers, structures and unions, data files and low level programming. Advanced C Programming: Control statements, functions, program structure, arrays, pointers, structures and unions, data files and low level programming. Advanced UNIX/Linux shell programming: types of shells, shell scripts, command substitution, conditional execution, iteration constructs, conditional execution, automatic repetitive tasks, passing parameters to shell scripts.
UNIX/Linux shell programming: types of shells, shell scripts, command substitution, conditional execution, iteration constructs, conditional execution, automatic repetitive tasks, passing parameters to shell scripts.
Introduction to CAELinux packages for solving simple engineering problems – CFD software like Code-Saturne, OpenFOAM, Finite Element software like Salome-Meca, Analysis software like wxMaxima, Scilab, MATLAB, R Commander.

MME201  Material Science  (2 Units)
Engineering properties of wood, concrete, ceramics, polymers, ferrous and non-ferrous metals and alloys, cryogenic, corrosive media and nuclear application.
Second Semester – 200 Level

CVE204 Strength of Materials (2 Units)

EEE204 Electrical & Electronics Engineering-I (3 Units)
Circuits - elements, DC and AC circuits, Basic circuit laws and theorems. Resonance, power, power factors, 3-phase circuits. Introduction to machines and machine designs. Physics of devices -Discharge devices, semi-conductors, diode and transistors. Transistor characteristics, devices and circuits; Electrical and electrical power measurements. Instrumentation systems including transducers, signal conditioners, and read out devices. Oscilloscope, recorders, bridges. Measurement of voltage, current, resistance, impedance, frequency, phase difference, electric power, energy, force, displacement, temperature, flow, pressure, and other engineering parameters.

ENG200 Student Work Experience – I (SIWES-I) (0 Units)
Introduction to practices and skills through supervised hands-on workshop exercises in each engineering departments: Mechanical Engineering (Fabrication, welding, Machining, Foundry, Automotive operations, etc), Chemical Engineering (bar and liquid soap, creams, paints, etc), Civil Engineering, Computer Engineering (soldering and de-soldering, building of different circuits, etc), Petroleum Engineering, Electrical Electronics (surface and conduit wiring, etc), Information and Communication Technology (Satellite Dish installation). Working in the construction site if available during the period. Introduction to Networking Operation Centre (Satellite Broad casting), Bakery Operation (Bread Production), Water Table, sachet and Juice Production, Printing Technology, Fire-fighting Exercise and other available related general engineering practice on campus. These exercises include familiarisation with basic tools, troubleshooting. Safety precautions in handling devices in each workshop.

ENG202 Engineering Mathematics II (3 Units)
Partial Differentiation: Functions of several variables, continuity and partial derivatives. Total differentials, approximate calculations using differentials. Chain rule. Implicit differentiation. Series representation of functions (Maclaurin & Taylor’s), Taylor’s Theorem. Extremum


ENG204 General Engineering Laboratory - II (3 Units)
The aim of this practical course is to train the students on how to build simple electronic circuit which can solve problems, and to let them have a basic knowledge of the main units of every device which are electronically designed. Working with Resistors and Diodes, Bridge Circuits, Oscilloscopes and Capacitors, Relays and Transistors; Fluid Mechanics experiments; Strength of Materials experiments.

GST202 Peace Studies and Conflict Resolution (2 Units)
The course looks at basic definition of peace and conflict; it exposes the student to concepts in peace studies and conflict analysis. Conflict resolution, transformation and Mediation processes in peace education are evaluated for students understanding. Moreover, environmental factors, human rights issues and gender related conflicts in Africa are treated in relation to development and peace building. Students are taken through theories in Peace Studies in explaining ethnicity, religion and major causes of violent conflict in Africa.

GST204 Human Resources Management and Organisational Behaviour (1 Unit)
The entrepreneur as a team leader and coach. Managerial skills and roles. Emerging trends in the workplace; Changing demographics and the impact of technology. Emphasis on team work. Job design Behavioural consideration on job design. Physical consideration in job design. Practicum: Students of like mind work together in an organization-like group performing different roles.

MEE204 Workshop Technology-II (1 Unit)
Tools and machines for woodwork; Metal cutting: various cutting tools, saws, files, flame cutting, abrasive cutting; Metal joining: various welding techniques, soldering, screws, nuts, bolts, riveting. Casting techniques: Sand moulding, centrifugal, die casting and investment casting; Heat Treatment; Principles of rolling-hot and cold rolling, defects in rolled products; Drawing and deep drawing; Introduction to the economics of production processes;
Individual project; Machine operation practice. Use of hand tools, and safety measures in these fields.

**MEE206 Fluid Mechanics - I** (2 Units)

**MEE208 Engineering Drawing - II** (1 Unit)
Auxiliary Projections; Mechanical Drawings of machines parts – Cams, Gears, Couplings, Bearings, Pipes, Joints and valves; Structural Drawing – material representation, dimensioning of structural details and welds, wood and concrete structures, structural detailing; Introduction to CAD/CAM, Area of its applications and important. How CAD/CAM works. Extensive introduction to CAD package i.e. AutoCAD. Hand-on practical approach is used especially for CAD application.

**MTE206 Introduction to Mechatronics Engineering** (2 Units)

**MTE204 Computer Aided Engineering - II** (2 Units)
Importing various CAD formats, assembly and animation of the results of analysis, static modals, nonlinear, contact, impact, failure, thermal and multi-physics analysis, and computational fluid dynamics for design. Introduction to Pro/ENGINEER, Pro/MECHANICA by PTC Inc; Introduction to ANSYS by ANSYS inc; Introduction to Fluent and Gambit by Fluent Inc; Introduction to Simulink and SciLab for Control Engineering. Introduction to Autodesk Multiphysics CFD. Advanced use of CAELinux packages for solving simple engineering problems – CFD software like Code-Saturne, OpenFOAM, Finite Element software like Salome-Meca, Analysis software like wxMaxima, Scilab, MATLAB, R Commander.
Course Description-300 Level

First Semester – 300 Level

EEE303 Electric Circuit Theory (2 Units)

EEE323 Analogue Electronic Circuit (3 Units)

EEE341 Electromagnetic Fields and Waves - I (2 Units)
Electromagnetism; magnetic circuit; magnetizing curve; characteristics of magnet materials; Electromagnetic Induction; Excitation of Magnetic Circuits; Hysteresis and Eddy Current Losses; Energy Stored in Magnetic Circuits; Mutual Inductance and Transformers; Electromechanical Energy Conversion. Principles of Direct current Machines. Semi-Conductor devices, Electrical Measurement Instrument. Electric Charge and the law of electrostatics; Electric Field and lines of forces; Electrostatic Induction; Electric Field Intensity; A charge particle in an Electric Field; Electric Flux and Electric Flux Density; Electrical Potential and Energy; Dielectric Materials and their Properties; Poisson’s Equation and Laplace’s Equation; Capacitor; Insulation, Resistance of a cable; Energy stored in a capacitor.

EEE343 Electromechanical Devices & Machines - I (2 Units)
Magnetic circuits and magnetic materials, Transformers, Electromechanical-energy-conversion principles; Rotating machines; Synchronous machines; Induction machines; DC machines; Variable Reluctance machines and Stepping motors; Introduction to Power electronics; speed and torque control.

ENG301 Engineering Mathematics-III (2 Units)
Matrices and Determinants: Matrices, some special matrices, matrix operations. Determinants and some useful theorems. Laplace’s development. Solution of system of linear equations by determinants. Linear dependence and independence, rank of a matrix. General system of linear equations, existence and properties of solution, Gaussian elimination. Matrix inverse


MTE305 Computer Aided Design-I (2 Units)

MEE307 Thermodynamics-II (2 Units)

MEE309 Manufacturing Technology (2 Units)
Definition of manufacturing technology, Casting Processes, pattern design and other foundry work, Forming processes (rolling, forging, extrusion, wire drawing, deep drawing, sheet metal operations, etc.), Fabrication processes (welding methods, brazing, soldering, diffusion and adhesive bounding, Mechanical joining), metal removal processes (sawing, turning,
milling, drilling, shaping and planning, grinding, broaching, etc). Finishing operations (honing, lapping, polishing, burnishing, etc), break even analysis, design process and concurrent engineering, processing of plastics, ceramics and composites, introduction to some modern manufacturing technologies: rapid prototyping, powder metallurgy, lean and agile engineering, flexible manufacturing, computer numerical control machining, Micro-electronics processing, Virtual Manufacturing, Just In Time Manufacturing, etc.

MEE311  Theory of Machines-I (3 Units)

MTE309  Laboratory Practical II (1 Units)

MTE311  Mechatronics System Design - I (2 Units)
Overview of Mechanical Engineering Design compared to Mechatronics System Design. Modelling and Simulation of Physical Systems: Operator Notation and Transfer Functions, Block Diagrams, Manipulation and Simulation, Block Diagram Modelling – Direct Method, Block Diagram Modelling – Analogy Method, Electrical Systems, Mechanical Translational Systems, Mechanical Rotational Systems, Electrical-Mechanical Coupling, Fluid Systems; Introduction to Rigid body Kinematics and Dynamics. Practical hands-on proficiency in the use of engineering packages for analysis, design, Modelling and Simulation such as SCILAB, MATLAB, SIMUL8, MAPLE, CAELINUX, etc.

Second Semester – 300 Level

ABE302  Engineering Statistics (3 Units)

EEE302 Control Engineering - I (2 Units)

EEE304 Electrical & Electronic Engineering-III (2 Units)
diodes, transistors, photo cell and light emitting diode. Elementary discrete devices fabrication techniques and IC technology.

EEE324 Digital Electronic Circuit - II (2 Units)
Number Systems and Codes. Logic Gate Simplification of Logic expressions using Boolean Algebra. Simplification of logic expressions using Karnaugh method. Design combination circuit. Flip – Flops in the design of counters, registers and timers. Switching and waves shipping circuit. General of non sinusoidal signal (multi vibrators). Introduction to ADC and DAC. Designed of Logic Gates (Diode, DTL, TTL, ECL e.t.c)

EEE346 Electromechanical Devices & Machines - II (2 Units)
Magnetic circuits and magnetic materials, Transformers, Electromechanical-energy-conversion principles; Rotating machines; Synchronous machines; Induction machines; DC machines; Variable Reluctance machines and Stepping motors; Introduction to Power electronics; speed and torque control.

ENG300 Student Work Experience -II (SIWES – II) (0 Units)
Introduction to practices and skills through supervised hands-on workshop exercises in each engineering departments: Mechanical Engineering (Fabrication, welding, Machining, Foundry, Automotive operations, etc), Chemical Engineering (bar and liquid soap, creams, paints, etc), Civil Engineering, Computer Engineering (soldering and de-soldering, building of different circuits, etc), Petroleum Engineering, Electrical Electronics (surface and conduit wiring, etc), Information and Communication Technology (Satellite Dish installation). Working in the construction site if available during the period. Introduction to Networking Operation Center (Satellite Broad casting), Bakery Operation (Bread Production), Water Table, sachet and Juice Production, Printing Technology, Fire-fighting Exercise and other available related general engineering practice on campus. These exercises include familiarisation with basic tools, troubleshooting. Safety precautions in handling devices in each workshop

MEE308 Fluid Mechanics - II (2 Units)
Ideal viscous and compressible fluids under internal and external flow conditions. Inviscid Flow, boundary layer, vorticity and rotation of fluid particles. Flow through pipes and ducts. High and low Reynolds number flows. Two dimensional potential flows, Flow machines; cavitation. Thermodynamic and dynamic principles applied to fluid behaviour; stagnation conditions, speed of sound, Mach number and classification of flow, isentropic, Rayleigh, Fanno , Prandtl-Meyer, and shock. Stream function and velocity potential. Vortex and
circulation, Viscous flow; boundary layers, separation and turbulent flow. External flows, Lift and drag, thin air foil theory, Finite wing theory and airfoil design.

**MEE310 Workshop Technology - III** (2 Units)
Workshops settings, types of equipment, machines and materials: Bench fitting and measurement, metal removal processes: sawing, turning, milling, drilling, grinding, etc. Fabrication processes and welding methods, sheet metal work. Foundry Practice: Pattern making Casting, Furnace Operation and Metallurgy Practice. Automotive engineering practice. Hands-on practical approach for all the students on all engineering workshop equipment. Safety procedures in workshops.

**MME302 Engineering Metallurgy** (2 Units)

**MTE306 Computer Aided Design-II** (1 Unit)

**MTE308 Signals & Systems** (2 Units)

**MTE310 Physical Electronics** (3 Units)

MTE312 Mechatronics System Design - II (2 Units)
Part I: Sensors, Transducers & Actuating Devices. System Control-Logic Method, Signals, Systems and Control; Signal Conditioning and Real Time Interfacing. Use of simulation packages such as SCILAB, MATLAB, SIMULINK. Rigid body Kinematics and Dynamics.
Part II: Mechatronics System Design Project: The overall objective of this course is to get students started with simple mechatronics engineering research and development projects. It aims at developing students’ research skills, engineering and technology skills as well as entrepreneurial skills.
Course Description-400 Level

First Semester – 400 Level

ENG401 Engineering Report Writing & Communication (2 Units)
Business letters – Types and characteristics. Concluding the report writing – Summary, abstract, table of contents, proof reading and spell checking, appearance, the title page. The common computer packages used for technical drawing in technical report writing. Multimedia and visual presentation in a technical meeting. Concepts; Global standards of terminologies in Engineering; Communication alphabets and patterns, etc.

MEE401 Theory of Machines - II (2 Units)
Vehicular mechanism: brake and clutch systems. Velocity and acceleration diagrams of mechanisms, tongue diagrams; fluctuations of energy and speed. Introduction to analytical methods and computation in analysis of mechanism. Static and inertia force analysis in machine. Static and Dynamic equivalent systems. Kinetics and balancing of rotating and reciprocating masses and the balancing of their out-of-balance forces. Flywheel, Governors, Gyroscope motion and forces. Power transmission, belts, coupling; gearing between parallel shafts, epicycle gearing. Friction clutches; Cone and plate tubes. Friction in machines (bearing, clutches, etc), Free and forced vibration. Critical speeds, whiling of shaft, vibration isolation, transmissibility

MEE403 Automotive Engineering & Workshop (2 Units)
Introduction to Automotive Engineering, Automotive shop safety, measuring systems and measuring tools, shop hand tools, shop equipment and power tools how engine works: fundamentals of engine operations, electricity and electronic engine control, piston-engine operations, engine types and classifications, engine construction, valve and trains, engine measurements and performance. Fuel supply system, faulty diagnostics methods, hand-on-practical demonstration. Mechanics of vehicles, vehicle components and design, engine friction and lubrication system, traction, gear system: manual and automatic, cooling system, chassis and suspension, transmission system, steering and front axle, braking systems, tyre, automotive electrical systems. Air-conditioning, maintenance and troubleshooting of automobiles

MEE405 Thermodynamics - III (2 Units)
Refrigeration and Air-Conditioning Engineering: Refrigeration cycles, types of refrigeration system, refrigeration equipment, refrigerants and their selections and selections and applications, psychometrics of air processes, adiabatic mixing of air streams, humidification and dehumidification, comfort conditions, ventilation, air analysis, air contaminants, decay equations, air cleaning devices, air distribution systems. Refrigeration cycles; Ideal Gas mixture; Psychrometrics.
MEE407  Mechanical Engineering Design-I  

MEE411  Fluid Mechanics-III  
Review of flow through conduits and fittings (pipes, orifices, nozzles, diffusers, valves, bends, junctions). Analysis and design of pipe network, pipes in series, parallel and network. Fluid power machinery and components, performance characteristics and selection criteria for pump, compressor, fans, motors, accumulators, valves, actuators. Fluid power circuits and control, (hydraulic, pneumatic)—open centre, float centre, closed centre, meter-in, meter-out, etc. Design of fluid power systems, load inertia, overrunning, resistive, compressibility. Power system fluids, survey of hydraulic fluids and their properties, the ideal hydraulic fluids and seals.

MEE421  Measurement and Instrumentation  
Errors in measurements, classification and functional analysis, performance of instruments systems, calibration. Control system components, amplifiers, sensing devices, pumps and controllers, error detectors and output elements, instrumentation methods; measurements and recording of dimensions, time, weight, frequency, temperature, pressure, etc. transducers, bridge and potentiometer methods. Sychros, Hall effects, photovoltaic and moving iron transducers. Instrument transformers, Pulse transformers, energy meters and metering, information storage techniques, electronic instrumentation, digital technique, analog/digital signal processing.
MTE401 Computer Hardware Engineering (2 Units)
Digital logic. Data representation. Digital components and signals. Combinational and sequential logic design and realization. Microprocessor system design and programming. Simple and complex programmable logic devices. Hardware description languages and introduction to VHDL. CPU design and field programmable gate arrays (FPGAs)

MTE403 Introduction to Autotronics (2 Units)
This course provides an introduction to electrical and electronic principles, measurement, microprocessor systems and control so as to provide an integrated understanding of electronics and controls within the motor vehicle after automotive engineering is introduced. Review of Units used in electrical systems: voltage, current, power, resistance. Ohm’s Law, simple circuits, series and parallel connections, series-parallel circuits, power sources, primary and secondary cells, PSU’s. Capacitance, including properties. Capacitors in series and parallel. Principles of electromagnetics and devices. Introduction to induced EMF, Faraday’s Laws and Inductance. Semiconductors, simple explanation of PN Junction and Transistor. Sinusoidal quantities, average, peak, rms, period and frequency. Principles of digital systems, number systems, standard logic gates, Boolean algebra, counters. Principle of a standard microprocessor system, memory, interfacing to external devices, CPU. Concepts of inputs and outputs. Concepts of programmes. Serial and Parallel communications. Introduction to digital control and computer interfacing. PLC’s and sequential control. Open and Closed loop systems, principles and comparisons. Feedback amplifiers. Typical transducers for position, velocity, force temperature, pressure, moisture and fluid flow. Typical actuators, motors (DC motors, servomotors and stepper motors), relays, solenoids, displays

MTE405 Control Engineering - II (2 Units)
frequency domain. System identification from experimental data. Analog computing; basic computing element. Solutions of linear ODE. Simulation of simple transfer functions. D.C Bias design. Analysis and design of single stage and multiple stage amplifiers at low and high frequencies. Dealington pair, Cascoe amplifiers. Bootstrapping. Negative feedback concepts and feedback amplifiers

MTE407  Sensors & Actuators  (2 Units)

MTE409  Introduction to Robotics  (2 Units)
Introduction to Manipulator Dynamics: Lagrange’s Equation, Lagrange-Euler Dynamic Model. Use of Sensors and Vision System in Robotic System

MTE411  Digital Systems & PLCs  (2 Units)
Digital representation of information and binary arithmetic. Position number system, binary coding of alpha numeric characters in the computer, simple error detecting and correcting codes. (parity bits, Hamming codes). Arithmetic in various radio systems. binary arithmetic in combination logic. Boolean algebra, switching function, tr...uth tables, Karnaugh maps etc; Properties of switching functions; canonical forms, N and Nar designs; “don’t cares” minimization of multiple output switching functions; introductory minimization of multiple output switching functions; simple combinational circuit design; encoders, decoders, multiplexer, serial and parallel half and full adders, etc. Hazards in combinational circuit and other design problems. Notion of feedback state and delay in logic circuit; basic difference synchronous sequential circuits; illustration of the use of state transition equations, diagrams, tables etc in sequential logic by their use in defining the operation of synchronized or clocked flip flops (such as r.s, JKT etc flip flops). Edge triggered and master flip-flops.
MTE413 Numerical Methods (2 Units)

MTE415 Laboratory Practical-III (1 Unit)
CAD/CAM/CNC Experiments: Planning and design of Mechatronic part systems; CNC programming for Turn and Mill; Production of Mechatronics part systems

MTE417 Laboratory Practical-IV (1 Unit)
Electrical Machine Laboratory: A laboratory work on electrical machines designed to illustrate topics covered in Electromechanical Devices and Machines. Telecommunication Laboratory: A laboratory work on telecommunication designed to illustrate topics covered in Communication Principles as well as topics such as passive filters, tuned circuits and active analogue filters. Digital Electronic Laboratory: A laboratory work on digital electronics designed to illustrate topics covered in Electronic circuits. Electronic Circuit Laboratory: A laboratory work on electronic circuits designed to illustrate topics covered in Electronic Circuits.

Second Semester – 400 Level

ENG400 SIWES – III: Student Industrial Work Experience Scheme (6 Units)
During the SIWES each student will undergo practical on the job training in an engineering industry approved for its relevance to the student’s major for a minimum of 28 weeks starting immediately after the first semester examinations at 400 level. A programme of training will be drawn by the College and the Industry for each student, and a prescribed log book with daily recording of the student activities is to be kept by each student and appropriately signed. At the end of the programme, a written report is to be submitted to the college and each student to present a seminar on his/her industrial experience. Each student must pass a prescribed certification examination during the industrial training.
Course Description-500 Level

First Semester – 500 Level

**MEE501 Thermodynamics IV: Thermal Power and Propulsive Systems** (2 Units)
Thermodynamic properties of gases and vapors relating to power generating devices, work-energy relations, combustion and heat exchangers. Performance analyses and design concepts of gas turbines, internal combustion engines, steam power plants and heat exchanger equipment from theoretical and applied viewpoints.

**MEE503 Fluid Mechanics - IV** (2 Units)

**MEE505 Mechanical Engineering Design II** (2 Units)

**MEE507 Engineering Management** (2 Units)
Organizational structure, formal and informal, definition of the term organization, development of organization from one-man business. Scientific organization. Why engineering management. Engineering to Engineering management. Assuming management responsibilities: -management knowledge requirement. The engineering manager job: -engineering management process, the management functions, engineering project manager, hierarchy structure and flow of information. Hierarchy (scalar principle), scalar chain, gang plan, unity of command business organization, logic of organizing, the classical organizer, the behavioural organization, bureaucratic organization, centralization and decentralization. Network analysis, CPN, PERT, forecasting, controlling, budgeting, nature decision making, employer attitude to managerial leadership. Production, stages in production, factory location and design, factory layout and site selection, production method, mass production, unit, small and large batches. Personnel management, safety consideration, training and apprenticeship and recruitment, trade unions and their functions, joint consultations, and collective bargaining, setting variable cost control, tendering and estimating, estimated costs for operational control, basic account, balance sheet development, marketing, market research-prediction by time series analysis, limitation of statistical analysis, questionnaires, advertising and sales promotions,
export and import operations. Work study method. Research, characteristics of research design. What is a variable in research, operationalising variables and types of variables? Financial management.

**MEE517 Renewable Energy Systems (2 Units)**
Energy and Society. Sources of Energy. Energy demand and supply. Conventional and unconventional (renewable) energy. Energy conversion systems and devices for oil, gas, coal, heat, wood, nuclear, solar, wind, biomass, tidal, etc. Energy conservation. Energy Auditing. Nature and availability of wind energy; wind turbines, classification, construction and control; performance evaluation methods; power, efficiency, reliability and cost; load matching; nature and availability of solar radiation; radiation estimations and measuring instruments; materials for solar energy utilisation, radiative properties and thermal transport properties; introduction to non-concentrating collectors, design techniques and performance estimation; solar component and solar system operational characteristics; practical applications of solar energy, special solar devices for developing countries; and desalination, photovoltaics and solar water pumping.

**MTE501 Process Automation (2 Units)**
PLC programming higher functions; PLC-programming analogue in/outputs; 2-step controller; Basics in closed loop control; Closed loop temperature control; Closed loop pressure control; Closed loop flow control; Closed loop level control.

**MTE505 Control Engineering - III (2 Units)**
MTE507  Laboratory - V  (1 Unit)
Partial Automation:- Factory Automation; Factory Automation study fields: PLC
programming level 1 – 3; Industrial communication – Fieldbus; DC/AC motor; SCADA -
Touch panel; Assembly/disassembly or Mechatronics part systems

MTE509  CAD/CAM and Engineering IV  (2 Units)
Introduction to CAD/CAM, Area of its application and importance. How CAD/CAM works.
Extensive introduction to CAD/CAM packages i.e. AutoCAD, Autodesk-Inventor. Hand-on
practical approach is used especially for especially for advance CAD application

MTE511  Microcomputers & Microprocessor Systems  (2 Units)
Hardwired logic contrasted with program logic. Microcomputer applications. Elements of
microcomputer architecture; bus, microprocessor, memory, input-output, peripherals. Single
chip and multichip micro computers. Overview of available microcomputer systems. Internal
architecture; 3-bus concept, microprocessor operation. Microprocessor instruction set;
instruction format, addressing modes; instructions execution. Comparison of available
microprocessors. Machine language, assembly language and high level language
programming. Synthesis of combinational logic circuits with ROMS and PLAs. Review of
classical approach to sequential circuit design. The algorithmic state machine chart (ASM)
method of representing sequential problems. Realization of sequential circuits using MSI and
LSI. Register transfer languages

MTE513  Power Electronics and Devices  (2 Units)
Switching characteristics of diodes, transistors, thyristors etc. analysis of diode circuit with
reactive loads, analysis of circuits using transistors as switches, power control circuits, ACDC
converters, characteristics of switching transformers, power semiconductor device protection,
examples of power electronic circuits, solar devices. Characteristics of semiconductor
switches. Power conversion from AC to DC, DC to DC, DC to AC, AC to AC. Applications of
SCR and other thyristor devices: motor control, control of drives, heating and lighting.
Mechanical relays, solid state relays and stepping motors

MTE515  Mobile Robotics  (2 Unit)
Artificial intelligence programming techniques, basic problem-solving techniques,
knowledge acquisition and representation; artificial intelligent language (LISP and PROLOG).
Computer interface, machine learning, natural language understanding, knowledge-based
and expert systems, computer vision, robotics, relationship AI to software engineering and
database methodology. Societal impact of AI and robotics. Machine vision and pattern
recognition. Applications of identification trees, neural nets, genetics algorithms and other
learning paradigms.
MTE521  Reliability Engineering  (2 Units)

MTE517 Lean Production Management and Industrial Logistics  (2 Units)
Material and information flows within a company, providing practical experience for all employees involved in lean production projects, inventory minimisation as an important basis for increased productivity, the principle of pull production control, advantages compared to conventional production control methods, types and function of different pull production control methods, application of methods, Kanban – the classic pull principle, introduction to Value Stream Mapping (VSM). Lean manufacturing, flow production, throughput time and inventories while increasing flexibility, analysis of workplaces with the Standard Operation Sheet, adjusting the cycle times of individual workplaces, flow and takt time production, avoidance of material transport with linear and U layouts, Structure and development of open-plan production, Line Back system, integration of logistic processes with kanban, flexible employee systems: relay and caravan systems, multimachine operation. Quality control.

ENG501  Law & Management  (2 Units)
Definitions and functions of law; basic structure of Nigerian Law; law of engineering; principles of law involving contracts and contract documents, patents, and inventions, copyrights, trademarks, property; industrial labour law; legislation on wages, trade unions and industrial accidents; land acquisition, environmental laws, legal aspects of professional engineering; responsibilities and liabilities

Second Semester – 500 Level

MEE504  Heat Transfer - I  (2 Units)
Conduction: Fourier’s Law, thermal conductivity, heat transfer through composite walls, multi-layer cylinders and spheres; insulation thickness, rectangular and triangular prisms, transient heat conduction, heat conduction in two dimensional plate, convection, convection mechanism, use of dimensional analysis, relation between film and overall heat transfer coefficients, forced convection over plates, rods and through tubes, free convection from vertical planes and cylinders, radiation; radiation properties, shape factors, geometric factors, radiation between non-black bodies, combined conduction, convection and radiation, types
of heat exchangers and their applications; log means temperature difference, overall transfer coefficient, Solar radiation, introduction to mass transfer.

MEE510  Air Conditioning & Refrigeration  (2 Units)
Tools and Test Equipment; Gauge manifold assembly; Electronic leak detector; Multi meter Refrigerants and Refrigerant Oils; Characteristics of refrigerants; Section 608 of the Clean Air Act; Regulatory requirements; Compressors; Evaporators; Types of evaporators; Operation in a refrigeration or A/C system; Metering Devices; Effects of capillary tube length and size; Thermostatic expansion valves; Condensers; Types of condensers; In a refrigeration or A/C system. Piping and Accessories; Tubing, liquid receivers, sight glass; Heat Pump Theory and Components; Compressor, evaporator, condenser; Hands-On Lab Exercises; Installing and removing a manifold gauge set, recovering refrigerant evacuating (pulling a vacuum); Charging a system by weight and by superheat; Working with service valves and Schrader cores; Troubleshooting

MTE502  Automation & Robotics  (2 Units)
Programmable Logic Controllers; Introduction to PLCs, Advantages of PLCs, Ladder Logic Diagrams, Switching Logic. Components of PLC, PLC Operating Cycle, Additional Capabilities of a PLC, Latches, Design Cases (Deadman Switches, Conveyor, Accept/Reject Sorting), Addressing.
PLC connection, PLC operation, Numbering, Event based logic, sequential logic design, Advanced ladder logic functions. PLC Programming, Structured text programming, Instruction list programming, Function block programming, Continuous control, PLC data communication, Human Machine Interfaces (HMI), Selecting a PLC. CNC Machines; General information, Operation, Control panel descriptions, Tool function, Practical application of tool wear offset, feed function, spindle function, programming of CNC in absolute and incremental systems, program creation, preparatory functions, CNC Programming, Computer assisted part programming, Automatically programmed tools (APT Programming System), CAD/CAM approach to part programming, CAD/CAM application (turning problem, surface milling, machining of curved surfaces).

MTE504  MEMS and VLSI  (2 Units)
Basic micro electromechanical devices a brief review of the physics involved. Fabrication technology of microelectromechanical devices. IC fabrication technology (CMOS). Silicon crystal growth, epitaxy. Ion implantation, etching, chemical vapour deposition and
photolithography. Silicon bulk and surface micromachining technology for micro systems or MEMS. Very Large System Integration (VLSI).

MTE506 Engineering Vibrations (2 Units)

MTE508 Laboratory - VI (1 Unit)
Full Automation Study fields: Material/signal flow in a networked system; Installation and commissioning of a Mechatronics system; Programming and communication in a Mechatronics system; Maintenance and Trouble Shooting in a Mechatronics system

MTE512 Microcomputers and Embedded Systems (2 Units)

MTE514 Digital System Modelling (2 Units)

MTE510 Communications Systems (2 Units)
Microwave frequencies and uses; microwave transmission in transmission lines and wave guides, microwave circuits; impedance transformation and matching, microwave circuits; passive microwave devices, resonant and filter circuits, active microwave devices; Klystron and magnetron tubes and semiconductor devices for microwave generation. Antennae: definitions of elementary parameters related to radiation patterns; dipole and operture
antennae and the related design parameters; introduction to antennae arrays. Radio wave propagation: propagation in the ionosphere, troposphere and in stratified media; principles of scatter propagation; applications in general broadcast, television and satellite communication systems. Radar systems nature of radar and radar equations; composition of a radar system; application of different types of radars.

MTE516 Micro-Fabrication (2 Units)
Crystal growth, thermal oxidation, photolithography, etching, diffusion, iron implantation, film deposition, metallization, layout, process integration, IC manufacturing, MEMS, CAD tools for microfabrication (e.g. SUPREM, PROLITH etc.). Future trends and challenges

MTE518 Machine Vision (2 Units)
Advanced techniques and algorithms used in real-time computer vision and image processing design.

MTE520 Machine Learning (2 Units)

MTE599 Project (6 Units)
Each student is required to undertake a project that gives productivity value to the academic knowledge gained in his/her field of study. The project shall involve problem solving using engineering theories and techniques, and the implementation of the project design. The student is expected to design a possible solution to the problem, taking into account various aspects such as professionalism, economy, costing, and engineering viability. At the end of the first semester, each student shall present a seminar on his/her project.
The project work is to be completed in this second phase. Each student is to submit a proper written report (banded 3 hardcopies, and a CD-ROM of electronic copy). The project is presented and defended at a seminar. Students may choose to work on individual design projects or team design projects. These projects consist of largely industry-sponsored projects as well as research projects proposed by academics. Students are supervised by the academic supervisor, the industrial mentor (in the case of industry sponsored projects), and supported by resources in the department. Students are responsible for organization, scheduling, budgeting, implementing, and time management, design outcome including prototypes, and reporting.

This course lasts for one academic session. Each student must undertake a project under the supervision of a lecturer, submit a comprehensive project report and present a seminar at the end of the year. A project status report is to be presented at the end of the first semester. Each student must attend Engineering Seminars.

### Academic Staff Personal Data

<table>
<thead>
<tr>
<th>S/N</th>
<th>NAME</th>
<th>DESIGNATION</th>
<th>STAFF NUMBER</th>
<th>COREN REG. NUMBER</th>
<th>ACADEMIC/PROFESSION QUALIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Prof. Engr. Samuel Babatope Adejuyigbe</td>
<td>Professor</td>
<td>SS. 1016</td>
<td>R. 8,956</td>
<td>HND, PGD, M.Eng., Ph.D., MNSE, R. Engr.</td>
</tr>
<tr>
<td>4</td>
<td>Prof. Engr. O. Akinsannmi</td>
<td>Professor (Associate)</td>
<td>SS. 1100</td>
<td>R. 14,063</td>
<td>B.Sc., M.Sc., Ph.D., R. Engr.</td>
</tr>
<tr>
<td>5</td>
<td>Prof. Engr. Bukola Olalekan Bolaji</td>
<td>Professor (Associate)</td>
<td>SS. 1086</td>
<td>R. 9,356</td>
<td>B.Sc., M.Sc., Ph.D., R. Engr.</td>
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<tr>
<td>6</td>
<td>Prof. Olaniyan</td>
<td>Professor (Associate)</td>
<td>SS1047</td>
<td>R 15,930</td>
<td>B.Sc., M.Sc., Ph.D., R. Engr.</td>
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<tr>
<td>No.</td>
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<tr>
<td>11</td>
<td>Dr. Engr. Abiodun Akeju</td>
<td>Senior Lecturer</td>
<td>1692</td>
<td>9,118</td>
<td>B. Eng., M.Eng., Ph.D, R. Engr.</td>
</tr>
<tr>
<td>12</td>
<td>Dr. Engr. O.A. Oyelaran</td>
<td>Senior Lecturer (Associate)</td>
<td>1308</td>
<td>22,031</td>
<td>B. Eng., M.Eng., Ph.D, R. Engr.</td>
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<tr>
<td>13</td>
<td>Dr. Engr. Olatayo Moses Olaniyar</td>
<td>Senior Lecturer (Associate)</td>
<td>1202</td>
<td>20,267</td>
<td>B. Eng., M. Eng., Ph.D, R. Engr.</td>
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<tr>
<td>14</td>
<td>Dr. Engr. I.A. Adeyanju</td>
<td>Senior Lecturer (Associate)</td>
<td>1210</td>
<td>24,986</td>
<td>B. Eng., M. Eng., Ph.D, R. Engr.</td>
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<td>15</td>
<td>Dr. F. T. Fayose</td>
<td>Senior Lecturer (Associate)</td>
<td>0389</td>
<td>9,694</td>
<td>B. Eng., M.Eng., Ph.D, R. Engr.</td>
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<td>16</td>
<td>Dr. Engr. O.O Ajibola</td>
<td>Senior Lecturer (Associate)</td>
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<td>15,741</td>
<td>B. Eng., M.Eng., Ph.D, R. Engr.</td>
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<td>17</td>
<td>Dr. Engr. E. O. Omofunmi</td>
<td>Senior Lecturer (Associate)</td>
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<tr>
<td>18</td>
<td>Dr. Engr. A. A. Satimehin</td>
<td>Senior Lecturer (Associate)</td>
<td>0037</td>
<td>12187</td>
<td>B. Eng., M. Eng., Ph.D, R. Engr.</td>
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<td>19</td>
<td>Dr. Engr. B.J. Olorunfemi</td>
<td>Senior Lecturer (Associate)</td>
<td>1188</td>
<td>26,582</td>
<td>B. Eng., M. Eng., Ph.D, R. Engr.</td>
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<tr>
<td>21</td>
<td>Dr. Engr. Adetayo</td>
<td>Lecturer I (Associate)</td>
<td>0965</td>
<td>24,416</td>
<td>B.Sc., M.Sc., Ph.D, R. Engr.</td>
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<td>22</td>
<td>Dr. Engr. Adedayo Aladejobi Sobowale</td>
<td>Lecturer I (Associate)</td>
<td>1436</td>
<td>29,337</td>
<td>B.Sc., M.Sc., Ph.D, R. Engr.</td>
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<tr>
<td>23</td>
<td>Dr. Engr. A.F. Owa</td>
<td>Lecturer I (Associate)</td>
<td>1037</td>
<td>20,807</td>
<td>B.Sc., M.Sc., Ph.D, R. Engr.</td>
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</tbody>
</table>
### Technical Staff Personal Data

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name of Staff (Staff No)</th>
<th>Rank</th>
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<th>COREN Reg. Num.</th>
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<th>Name of Lab/Workshop</th>
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<tr>
<td>1</td>
<td>Engr. James O. Abioye</td>
<td>Senior Technologist</td>
<td>HND, PGD</td>
<td>R 42,887</td>
<td>2</td>
<td>- System Design Lab</td>
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<td>- Modelling and Simulation Laboratory</td>
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<tr>
<td>2</td>
<td>Mr. T.O. Ayeye</td>
<td>Senior Technologist</td>
<td>HND, PGD</td>
<td>R3,678ET</td>
<td>1</td>
<td>- Mechatronics Workshop</td>
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Handbook / Department of Mechatronics Engineering 57
<table>
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<tr>
<th>S/N</th>
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<th>Administrative Office/ Title</th>
<th>Prof Qual</th>
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<tr>
<td>3</td>
<td>Mr. Y.O. Ogunbgenle</td>
<td>Senior Technologist</td>
<td>HND, PGD</td>
<td>R 1,980ET</td>
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<tr>
<td></td>
<td>(SS0572)</td>
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<td>1 - Modelling and Simulation</td>
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<tr>
<td>4</td>
<td>Mrs. O.M. Olaosebikan</td>
<td>Technologist I</td>
<td>HND, PGD</td>
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<td>2 - Autotronics</td>
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<tr>
<td>5</td>
<td>Mr. Tolulope Opeyemi Olukokun</td>
<td>Technologist I</td>
<td>HND, PGD,</td>
<td>-</td>
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<tr>
<td></td>
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<td>MSc</td>
<td>2 - Basic Mechatronics Lab</td>
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</tr>
<tr>
<td>6</td>
<td>Mr. Adegboyega Babatunde Otena</td>
<td>Technologist I</td>
<td>HND, BSc.</td>
<td>-</td>
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<td>ikie (SS. 0627)</td>
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<td>1 - Autotronics</td>
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<td>1 - Robotics and Automation</td>
</tr>
<tr>
<td>7</td>
<td>Mr. John Olubunmi Payne</td>
<td>Head Laboratory Assistant</td>
<td>B.Sc. (Ed)</td>
<td>-</td>
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<tr>
<td></td>
<td>(JS0119)</td>
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<td>1 - Autotronics</td>
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</table>

**Administrative Non-Teaching Staff**

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<th>S/N</th>
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<th>Administrative Office/ Title</th>
<th>Prof Qual</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mr. O.K. Ejike (SS.0657)</td>
<td>Admin Officer I</td>
<td>ANUPA</td>
<td>B.Sc. (Sociology and Anthropology)</td>
</tr>
<tr>
<td>2</td>
<td>Mrs. F.E. Adeosun (SS0100)</td>
<td>Senior Executive Officer</td>
<td>-</td>
<td>MSc. (Public and International Relations)</td>
</tr>
<tr>
<td>3</td>
<td>Mr. Gbenga Damilola Ogunti</td>
<td>Clerical Officer</td>
<td>-</td>
<td>NCE (Political Science)</td>
</tr>
</tbody>
</table>
Academic Staff Profile

Engr. Dr. Arowolo Matthew Oluwole, MNSE, HFEM

Designation: Senior Lecturer/Head of Department of Mechatronics
E-Mail: arowolo.oluwole@fuoye.edu.ng
Phone: +2348038066827

Engr. Dr. Arowolo’s Career Profile

Engr. Dr. Arowolo M. Oluwole graduated with B.Eng in Mechanical Engineering from University of Ado – Ekiti, now Ekiti State University (EKSU) Nigeria and Master of Engineering (M.Eng) in Mechanical Engineering (Industrial/Production Option) from the Federal University of Technology, Minna, Niger State (FUT Minna) Nigeria in 2000. He received his PhD in Industrial Engineering from Universiti Teknologi Malaysia (UTM) in 2015. Engr. Dr. M.O Arowolo before joining the University is a practicing Engineer with industrial experience as Maintenance Engineer at Henley Industries Ltd Plot No C – 21/6 Anloma Road, Agbara Industrial Estate, Agbara, Ogun State (April 1996 - 1998) and a pioneer Head of Department of Mechatronics Engineering Osun State College of Technology, Esa – Oke. He is a registered Engineer with the Council for Regulation of Engineering in Nigeria (COREN) and Corporate Member of the Nigeria Society of Engineers (MNSE). He has contributed to development of engineering in terms of training and capacity building, academic curriculum development and staff development. He has attended many International Conferences and served creditably well in many University committees. His research areas include Mechatronics System Designs, Automation, Robotics, and Simulation. He is currently a Senior Lecturer and Head of Department in the Department of Mechatronics Engineering, Federal University Oye, Ekiti, Ekiti State, Nigeria.

Selected Publications


Conference paper

Prof. Samuel Babatope ADEJUYIGBE,
Professor and Former HOD of Mechanical and Mechatronics Engineering
samueladejuyigbe@yahoo.com; samuel.adejuyigbe@fuoye.edu.ng
+2348034740386, +2348033562318

Prof. Adejuyigbe Career Profile

Adejuyigbe who was born at Efom Alaye, Ekiti State of Nigeria was formerly the Head of Mechanical Engineering Department, Federal University of Technology, Akure, Nigeria and also the former Administrator (Director), Directorate of Works and Services, and the former Dean, College of Engineering, Federal University of Agriculture, Abeokuta, Nigeria. He was also the former Vice Chairman, Committee of Deans of Engineering and Technology of Nigerian Universities (CODET). He is presently the Head of Mechatronics Engineering Department, Federal University, Oye-Ekiti.

An enthusiastic holder of Doctorate Degree (PhD) in Production Engineering, Registered with Council for Regulation of Engineering in Nigeria (COREN), Member Nigerian Society of Engineers (MSEN) and Member, Ghana Institute of Engineers (MGhIE), Member, International Association of Engineers (MIAENG) nd an adaptable, ambitious and determined Professor, a man nurtured by God who started from the grassroots (Craftsman) and passed through all the facets of Technical Education in Nigeria and City and Guilds, of London with years of experience gained from the background of Industrial Fitter Machinists’, Technologists, Manufacturing Registered Engineer, Computer Aided Engineering Expert, He possess the ability to work well under pressure and meeting tight deadlines. Enjoying seeing task through from the beginning to the end.

His research interests are in the areas of Computer Aided Engineering (CAD/CADD/CAM/CAPP/CIM), Manufacturing Engineering; Ergonomics and Human Factor Engineering; Materials Processing and Foundry Engineering; Machine Tools; Production/Operations Management; Knowledge Based Expert System; Artificial Intelligence; Human Resources Management and Organizational Behaviour; and Entrepreneurship.

He has about 31 years’ experience as a Lecturer and Administrator in the Polytechnic and the University. He is a born leader, an assiduous worker, a motivator, an innovator and an academic achiever. He has contributed to infrastructural development and maintenance, academic curriculum development, staff development and capacity building programmes. As an erudite scholar and prolific writer, he has a great wealth of research experience which culminated into over 160 academic publications in International journals, peer reviewed conference proceedings, books and technical reports etc. He has trained a lot of students at both undergraduate and postgraduate levels and to his credit; he has successfully supervised 12 Ph.D, 59 Masters, 32 PGD, 53 Bachelors, and 19 HND.

He has an excellent personality with stable emotion and physics. He has also served creditably well in many University committees and as a Member of University Senate in Nigeria and abroad. He is also an External Examiners to many Universities and Polytechnics in Nigeria. He creditably served as a reviewer to many journals and books in Nigeria, Ghana and International.

Selected Publications


Dr. Engr. ADEYEMO, Ismail Adeyemi, MNSE,
Designation: Reader
E-Mail: iaadeyemo@lautech.edu.ng ; yemiadeyemo4@gmail.com
Phone: +2348039242060, +2348081483174

Dr. Engr. ADEYEMO, Ismail Adeyemi Career Profile
Dr. Engr. ADEYEMO, Ismail Adeyemi, graduated with B.Tech. (Hons) Degree in Electronic and Electrical Engineering from Ladoke Akintola University of Technology, Ogbomoso in 1998 and M.Sc. Degree in Electronic and Electrical Engineering (Electronic/Communication Engineering option) from the University of Lagos (UNILAG), Akoka, Lagos, Nigeria in 2002. He holds a PhD in Electronic Engineering (Power Electronics Engineering) from Ladoke Akintola University of Technology, Ogbomoso. He is a registered Engineer with the Council for Regulation of Engineering in Nigeria (COREN) and Corporate Member of The Nigeria Society of Engineers (MNSE). He has contributed to development of engineering in terms of training and capacity building. He has attended many International Conferences and served creditably well in many University committees. His research areas include Smart Antenna Arrays & Digital Signal Processing, Advanced Antenna Theory and Design, RF and Microwave Engineering, Antenna Design at THz/Millimeter Wave Frequencies and Advanced Digital Communication Systems. He is currently a Lecturer in the Department of Engineering Electrical & Electronics, Federal University Oye, Ekiti, Ekiti State, Nigeria.

Selected Publications


Conference paper


Image Retrieval System”, International Journal of Mechanical Engineering and Technology, India, Available at http://www.iaeme.com

Engr. Professor OSUEKE, Okechukwu Christian MNSE, MNInamechE, COREN Regd
Designation: Professor (Adjunct)
E-Mail: profkrisosueke@gmail.com
osueke.christian@lmu.edu.ng
Phone: +234 803 324 5942

Engr. Professor Osueke’s Career Profile

Christian Okechukwu OSUEKE is a Professor of Design, Automation and Energy and a doctorate degree (Ph.D) holder in Mechanical Engineering, a registered engineer with Council for Regulation of Engineering in Nigeria (COREN), a member of Nigerian Society of Engineers (MNSE), a member of Nigerian Institute of Mechanical Engineers (MNiMechE) and a passionate, result oriented leader. He has over 25 years of experience as a Mechanical and Production Engineer, 21 years of experience as a Lecturer and 17 years of experience as an Administrator. He has risen to become Dean, College of Engineering, Landmark University, previously occupying the offices of the Dean of Student Affairs and Head, Mechanical Engineering Department in the same University for a period of 1 and 5 years respectively. He delivered the 5th inaugural lecture of Landmark University titled ‘Divine Secrets the Booster of Innovative Design and Automation’. Professor Osueke is also an impact – oriented researcher with 69 journal articles and 3 published textbooks making a total of 72 publications. He is also on the NUC team for accreditation and verification visitation and has visited 6 universities. He is an exceptional leader who always takes initiative, shows enthusiasm and delivers beyond expectation for any work he is responsible for. He is a Christian with integrity as one of his core values.

Selected Publications


Conferences Papers


Engr. Prof. Bukola Olalekan BOLAJI
Professor (Associate)
bukola.bolaji@fuoye.edu.ng
+2348109232572

Engr. Professor Bukola’s Career Profile
Professor Bukola Olalekan BOLAJI was formerly the Head of Mechanical Engineering Department, Federal University of Agriculture, Abeokuta and currently the Head of Department, Mechanical Engineering, Federal University Oye-Ekiti. He has a professional and academic experience of over 20 years; he obtained his Bachelor of Engineering (B.Eng.), Master of Engineering (M.Eng.) and Doctor of Philosophy (Ph.D.) degrees in Mechanical Engineering at the Federal University of Technology, Akure, Nigeria in 1994, 1998 and 2009, respectively. His research interests are in the areas of refrigeration and air-conditioning, solar thermal and solar power systems. His deep interest in the study of Environment-Friendly Refrigeration System won him a Post-Doctoral research fellowship at the Tshwane University of Technology, Pretoria, South Africa in 2011. In August 2013, he was given award of Academic Excellent by the same University as the Best Post-Doctoral Fellow of the Year 2012. He has supervised over 30 undergraduate and post graduate students. As a chartered Engineer, he has consulted in a variety of industries in Nigeria on refrigeration, air-conditioning and solar power systems for over seventeen years. As an erudite scholar, he has a great wealth of research experience which culminated into over 70 academic publications in international journals, peer reviewed conference proceedings, books etc. He is a member of several professional bodies including: The Nigerian Society of Engineers (NSE), Nigerian Institution of Engineering Management (NIEM) and Environment Behaviour Association of Nigeria (EBAN). He is also a member of Southern African Association for Energy Efficiency (SAEE).

Selected Publications

Engr. Professor Akinsanmi’s Career Profile

Prof (Engr). Olaitan Akinsanmi is currently a Professor in the Department of Electrical and Electronics Engineering, Federal University, Oye-Ekiti, Nigeria. He holds a Bachelor of Engineering (BEng, 1997) degree from the University of Ado-Ekiti, Master of Science (MSc, 2005) degree and Doctor of Philosophy (PhD, 2012) degree from Ahmadu Bello University, Zaria, Nigeria. He is a registered Engineer with the Council for The Regulation of Engineering in Nigeria (COREN), Professional Member, Institute of Electrical and Electronics Engineers (IEEE), and Corporate Member of The Nigerian Society of Engineers (NSE), Associate Member among others. Dr. Akinsanmi is a recipient of Award of The Pillar of Nation Builder in the Academics from The Nigerian Strategic Institute for Natural Resources and Human Development in 2013. He has acquired over seventeen year of research and development with different organizations and over 15 years of effective teaching and administrative experience at the University level. He is a specialist in Computational Electromagnetics, Neural Network Soft Computing in Artificial Intelligence and Reliability of Engineering systems and has several published journals at both national and international levels.
Engr. Dr. Adekunle Adefemi Adeyemi,

Designation: Senior Lecturer
E-Mail: adefemi.adekunle@fuoye.edu.ng
       eddymontana4@live.com
Phone: +2348033807942, +2347055443768

Engr. Dr. Adekunle’s Career Profile

Adekunle who was born at Ede in Osun State of Nigeria was formerly working with Reynold Construction Company, during the Construction of Ogbomoso/Ilorin Express way before joining Ladoke Akintola University of Technology Ogbomoso, Oyo State as a Senior Lecturer. He had his B.Tech degree in Mechanical Engineering at the Department of Mechanical Engineering at Ladoke Akintola University of Technology, (LAUTECH) Ogbomoso Oyo State, in 1999, and there after proceeded to the Federal University of Technology, Akure (FUTA) in Ondo State for his M. Eng. in Mechanical Engineering with a Ph.D grade of 3.73 which made him to pursue his academic career at the Federal University of Agriculture Abeokuta (FUNAAB) in Ogun State. He graduated from the Mechanical Engineering department of FUNAAB with a 73.3% aggregate in Ph.D Mechanical Engineering (Production Option) in the area of Artificial intelligence and Mechatronics. An enthusiastic holder of Doctorate Degree (PhD) in Production Engineering, Registered with Council for Regulation of Engineering in Nigeria (COREN), Member Nigerian Society of Engineers (MNSE), Corporate Member (MIEEE) Robotics and Automation Society, Corporate Member of South Asia Institute of Science and Engineering, (MAISE), Corporate Member of American Association for Science and Technology (MAASCIT), Corporate Member of International Association of Engineers (MIAENG). He possesses the ability to work well under pressure and meeting tight deadlines. He has attended many International Conferences both locally and internationally. He has Chaired many Sessions in an International Conferences and has been reviewing for many international journals. His research interests are in the areas of Computer Aided Engineering (CAD/CADD/CAM/CAPP/CIM), Automation, Robotics, Artificial Intelligence, Manufacturing Engineering; Machine Tools; Production/Operations Management; and Knowledge Based Expert System. Adekunle has about 15 years’ experience as a Lecturer and Administrator in the University. He is an assiduous worker, a motivator, an innovator and an academic achiever. He has contributed to infrastructural development and maintenance, academic curriculum development, staff development and capacity building programmes. As an erudite scholar and prolific writer, he has a great wealth of research experience which culminated into over 160 academic publications in International journals, peer reviewed conference proceedings, and technical reports etc. He has supervised 6 Masters Students, 8 PGD students and over 30 undergraduate students to his credit. He has an excellent personality with stable emotion and physics. He has also served creditably well in many University committees

Selected Publications


4. Arowolo M.Oluwole; Adekunle A. Adefemi; Sam B.Adejuyigbe; Oluwaseun O Martins; Abiodun M. Adebimpe; Adegbuyega B.Otenaike; Abiodun E. Akeju (2019). Validation of
Engr. Dr. Daniel Chukunebikpe Uguru-Okorie, MNSE
Designation: Senior Lecturer
Email: danchukus@yahoo.com
Phone: +2348035433622

Engr. Dr. D. C. Uguru-Okorie’s Profile

Engr. Dr. D. C. Uguru-Okorie received a B.Eng. degree in Mechanical Engineering from the Federal University of Technology, Owerri, Nigeria and MSc. and PhD degrees in Mechanical Engineering (Thermo-Fluids Option) from the University of Ibadan, Nigeria. During his MSc. programme, he was awarded the Nigeria Sao Tome and Principe Joint Development Authority, postgraduate scholarship and during his PhD programme, he was awarded the Petroleum Technology Development Fund (PTDF) PhD scholarship with which he travelled to the University of Leeds, United Kingdom, as a visiting PhD research student. He is a COREN registered engineer, a corporate member of the Nigerian Society of Engineers (NSE) and a member of the Society of Automotive Engineers (SAE).

Before joining the department, he has served as the Head of the Department of Mechanical Engineering, Landmark University, Omu Aran, Kwara state, Nigeria. His research interests are in the areas of fuels and combustion in internal combustion engines, heat transfer and the development of renewable energy systems.

Selected Publications


Conferences and Workshops Attended


2. 28th Engineering Assembly with the theme: Strategic Alliance Amongst Engineering Professionals for Enhanced Opportunities. Held at the International Conference Centre (ICC), Abuja from Monday, 19th to Wednesday, 21st August, 2019.

3. A workshop on Leadership Program for Research and Development. Facilitated by the African Women in Agricultural Research and Development (AWARD) at Covenant University, Ota, Ogun State, 3rd September to 5th September, 2018.

4. 27th Engineering Assembly with the theme: The Nigerian Built Industry: Building a Sustainable Structure with Allied Professionals. Held at the International Conference Centre (ICC), Abuja from Monday, 6th to Wednesday, 8th August, 2018.

5. 2nd International Conference on Engineering for a Sustainable World (ICESW 2018), held at Covenant University, Ota, Ogun State, Nigeria, July 9-13, 2018.

Engr. Dr. Adeleke’s Career Profile

Dr. Adeleke obtained his B.Sc. (Hons) and M.Sc. degree in Mechanical Engineering from the University of Ibadan, Nigeria in 2000 and 2005 respectively. He completed his Ph.D degree in Mechanical Engineering (Renewable Energy/Materials) at the Federal University of Agriculture, Abeokuta, Ogun State, Nigeria in 2012. His research interests are in areas of Thermodynamics of Materials, Renewable energy with major focus on biofuel. He has published a number of articles in reputable national and offshore journals. He is a member of notable professional organizations including Council for the Regulation of Engineering in Nigeria (COREN) and Nigerian Society of Engineers (NSE).

Selected Publications

Engr. Dr. Olatayo Moses Olaniyan
Senior Lecturer (Associate)
B.Tech, M.Sc, PhD. MCNP, COREN
olatayo.olaniyan@fuoye.edu.ng

Engr. Dr. Olaniyan’s Career Profile

Dr. (Engr) Olatayo Moses OLANIYAN is a Senior lecturer and Ag. Head in the Department of Computer Engineering at FUOYE. He graduated with a B.Tech degree in Computer Engineering from Ladoke Akintola University of Technology, Ogbomoso, Nigeria in 2005. Also he obtained Master degree from University of Ibadan in 2010 respectively. He obtained his PhD degree at LAUTECH, Ogbomoso in 2015. His research interests include: Soft Computing, Networking, Computer Security and Human Computer Interaction. He has published in reputable journals (Local and International). He belongs to the following Professional bodies: Full member, Computer Professionals (Registration) council of Nigeria (MCPN); Council for Regulation of Engineering in Nigeria (COREN).

Engr. Dr. Abiodun Akeju
Lecturer I
PhD, COREN
akeju.abiodun@aol.com
+234 (0)803 727 2744
+234 (0)812 237 3839

Engr. Dr. Akeju’s Career Profile

Engr. Dr. Abiodun Akeju is a Lecturer in the Department of Mechatronics Engineering, Federal University, Oye, Ekiti State. A Mechanical Engineering academics and professional with hands-on experience in requirements-driven approach to designing machine components based on mathematical and engineering principles. He is a member of Nigerian Society of Engineers, Member, American Society of Mechanical Engineers, Member Society of Automotive Engineers International, as well as a COREN registered Engineer.

DR. (ENGR.) SOBOWALE, ALADEJOBI ADEDAYO
Lecturer I (Associate)
B.Tech, M.Eng, PhD, COREN
sobowaleadedayo@gmail.com

Engr. Dr. Sobowale’s Career Profile

Dr. (Engr.) Sobowale, Aladejobi Adedayo is currently a Lecturer I at the Department of Computer Engineering, Federal University, Oye-Ekiti, Nigeria. He obtained a Bachelor degree (B.Sc) in Computer Engineering (2001) from Obafemi Awolowo University, Ile – Ife. 1995 – 2001 and his Masters (M.Sc) degree in Software Engineering (2011) University of Ilorin, Ilorin.2009 – 2011 and Doctorate (PhD) degree in Computer Science and Engineering (2016) from Ladoke Akintola University, Ogbomoso.Oyo State, Nigeria
Engr. Aribisala Adetoye Ayokunle
Lecturer I
E-mail: adetoye.aribisala@fuoye.edu.ng
Phone: +2347082291662
B.Eng. (FUTA), M.Sc. (NOUN), CCNP, MNSE, COREN

Engr. Aribisala Adetoye is presently a Lecturer I in the Department of Mechatronics Engineering, Federal University, Oye-Ekiti. He received his B.Eng. degree in Mechanical Engineering from Federal University of Technology, Akure and MSc degree in Information Technology from National Open University of Nigeria, Lagos and M-Eng. from the University of Ibadan. He is currently a PhD student (Machine Learning in Maintenance) at the Department of Production Engineering, Federal University of Pernambuco, Recife, Brazil Before joining the university, he worked as a Principal Engineer in National Iron Ore mining Company, Itakpe where he combined his skills of Industrial/production engineering with computer aided and database design in order to optimize the production of Iron Ore Concentrates. He also worked as a Senior Engineer in Planning unit of Federal University, OyeEkiti where he was involved with planning and designing of Mechanical works in the Institution’s infrastructure. Engr. Adetoye’s current research interest is in the area of Industrial Automation and Systems Engineering. He has published a paper titled: Design of an Employee Management system (A Case Study of National Iron Ore Mining Company, Itakpe)

Selected Publications


ENGR. NNAMDI STEPHEN OKOMBA
Lecturer I (Associate)
B. Eng., M.Eng, MNSE, R.Engr. COREN
nnamdi.okomba@fuoye.edu.ng

Engr. Okomba’s Career Profile
Engr. Nnamdi Stephen OKOMBA is a lecturer I and researcher with the Department of Computer Engineering with interest in Embedded Systems, Digital Signal Processing, Software Engineering and Telecommunication system, information Technology, Electromagnetic Fields and Waves, Radio wave Propagation, Antenna and Microwave Engineering. His previous research works includes Multipoint temperature sensors for oil and gas industries, and Microcontroller based stepper motor control with experiments for tertiary institution.

ENGR. MRS BOLAIJI OMODUNBI
Lecturer I (Associate)
B.Tech, MSc. R.Engr. COREN
bolaji.omodunbi@fuoye.edu.ng

Engr. Omodunbi’s Career Profile
Engr, Mrs Bolaji OMODUNBI is a lecturer I and researcher with the Department of Computer Engineering. She graduated with a B.Tech degree in Computer Engineering from Ladoke Akintola University of Technology, Ogbomoso, Nigeria. Also she obtained M.Sc in Communication Engineering from University of Birmingham, UK. Presently, She is on her Ph.D research work at Ladoke Akintola University of Technology, Ogbomoso. She has published in reputable journals and her research areas include Wireless Networks, Sensors Technology, Information Security, Data Communication and E-health.
Engr. Oluwaseun Opeyemi Martins, MNSE,
Designation: Lecturer II
E-Mail: oluwaseun.martins@fuoye.edu.ng
Phone: +2348034782418

Engr. Martins Career Profile

Engr. Oluwaseun Opeyemi Martins, graduated with B.tech in Mechanical Engineering from Ladoke Akintola University of Technology, Ogbomosho (LAUTECH) Nigeria in 2008 and Master of Engineering (M.Eng) in Mechanical Engineering (Computer Aided Engineering Option) from the Federal University of Agriculture, Abeokuta (FUNAAB) Nigeria in 2013. He is currently a PhD student (Mobile Robotics and Machine Learning) at the Department of Mechatronics Engineering, Federal University Oye-Ekiti. Engr. O.O. Martins before joining the University is a practicing Engineer with industrial experience in different capacities with various engineering firms such as Production Engineer at the Ogun State Water Corporation, Assistant Maintenance Officer at Lafarge Cement Wapco Nigeria, Ewekoro Plant and Project Engineer (Mechanical Building Services) at SOAD Engineering Consult. He is a registered Engineer with the Council for Regulation of Engineering in Nigeria (COREN) and Corporate Member of The Nigeria Society of Engineers (MNSE). He has contributed to development of engineering in terms of training and capacity building, academic curriculum development and staff development. He has attended many International Conferences and served creditably well in many University committees. His research areas include CAD/CAM/CAE, Mechatronics System Designs, Automation, Robotics, and Simulation. He is currently a Lecturer in the Department of Mechatronics Engineering, Federal University Oye, Ekiti, Ekiti State, Nigeria.

Selected Publications


Conference paper


Engr. Adebimpe Abiodun Michael, MNSE,
Designation: Lecturer II
E-Mail: abiodun.abiodun@fuoye.edu.ng
Phone: +2348062470796

Engr. Adebimpe Career Profile
Engr. Adebimpe Abiodun Michael graduated with HND in Electrical and Electronic Engineering from the Federal Polytechnic, Ado-Ekiti, Nigeria in 2002, Postgraduate Diploma from the Federal University of Technology, Akure (FUTA) in 2008 and Master of Engineering (M.Eng) in Electrical and Electronic Engineering from the Ekiti State University, Ado-Ekiti (EKSU) in 2017. Engr. A. M. Adebimpe had worked with Bummy Technology Nig. LTD, Ikeja, Lagos and Ekiti State Ministry of Works and Transportation before joining the University. He is a registered Engineer with The Council for the Regulation of Engineering in Nigeria (COREN) and Corporate Member of The Nigerian Society of Engineers (MNSE). He has served creditably well in the Physical Planning Unit and many University committees. His research areas include Mechatronics System Designs, Automation, Engineering Modelling and Simulation. He is currently a Lecturer in the Department of Mechatronics Engineering, Federal University Oye, Ekiti, Ekiti State, Nigeria.

Publications


Conference paper

Ayodele Sunday OLUWOLE, Dr. Engr., graduated with B.Eng. in Engineering Electrical & Electronics from University of Ado-Ekiti, Nigeria in 2003 and Master of Engineering (M.Eng.) in Engineering Electrical & Electronics (Communication) from the Federal University of Technology, Akure (FUTA) Nigeria in 2010. He holds a PhD in Electronic Engineering [Smart Antenna Arrays] from the University of KwaZulu-Natal, South Africa. He is a registered Engineer with the Council for Regulation of Engineering in Nigeria (COREN) and Corporate Member of The Nigeria Society of Engineers (MNSE). He has contributed to development of engineering in terms of training and capacity building. He has attended many International Conferences and served creditably well in many University committees. His research areas include Smart Antenna Arrays & Digital Signal Processing, Advanced Antenna Theory and Design, RF and Microwave Engineering, Antenna Design at THz/Millimeter Wave Frequencies and Advanced Digital Communication Systems. He is currently a Lecturer in the Department of Engineering Electrical & Electronics, Federal University Oye, Ekiti, Ekiti State, Nigeria.

**Selected Publications**


Conference paper


**Dr. Engr. Temitope Adefarati, MNSE,**  
**Designation: Lecturer I**  
**E-Mail: temitope.adefarati@gmail.com**  
**Phone: +2348064249953**

**Dr. Engr. Temitope Adefarati Career Profile**
Dr. Engr. Temitope Adefarati, graduated with B.Eng. in Engineering Electrical & Electronics from Federal university of Technology Akure Nigeria in 2004 and Master of Engineering (M.Eng.) in Engineering Electrical & Electronics from the University of Port Harcourt Nigeria in 2010. He holds a PhD in Electrical Engineering (Reliability and renewable energy resources) from the University of Pretoria, South Africa. He is a registered Engineer with the Council for Regulation of Engineering in Nigeria (COREN) and Corporate Member of The Nigeria Society of Engineers (MNSE). He has contributed to development of engineering in terms of training and capacity building. He has attended many International Conferences and served creditably well in many University committees. His research areas Diversified and interdisciplinary research interests in the areas of Renewable Energy and Power Systems, Power Electronics, Electrical Machines, Smart Grid. He is currently a Lecturer in the Department of Engineering Electrical & Electronics, Federal University Oye, Ekiti, Ekiti State, Nigeria.

**Selected Publications**

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**Books and Chapters**

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| Springer ( Scopus indexed) | **Name of a Book**: Handbook of distributed generation: electric power technologies, economics and environmental impacts.  
**Chapter Title**: Non-renewable distributed generation technologies: a review | 2017 |
| Springer ( Scopus indexed) | **Name of a Book**: Handbook of distributed generation: electric power technologies, economics and environmental impacts.  
**Chapter Title**: Distributed renewable energy technologies | 2017 |
| CRC Press (Taylor and Francis Group) | **Name of a Book**: Power System Protection in Smart Grid Environment  
**Chapter Title**: An Overview of Smart Grid in Protection Perspective | 2019 |
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<td>Pathways to a smartgrid power system</td>
<td>Energizing Renewable Energy Systems and Distribution Generation</td>
<td>2019</td>
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</table>
Engr. Dr. Olugbenga Aderoba,
Designation: Lecturer I
E-Mail: olugbenga.aderoba@fuoye.edu.ng
Phone: +2347034946250

Career Profile
Engr. Dr. Olugbenga Aderoba, graduated with a B.Eng in Mechanical Engineering from the Federal University of Technology, Akure (FUTA) Nigeria in 2008 and obtained a Master of Engineering (M.Eng) in Industrial Engineering and a Ph.D also from the same Federal University of Technology, Akure, Nigeria in 2014 and 2019 respectively. He is a registered Engineer with the Council for Regulation of Engineering in Nigeria (COREN) and Corporate Member of the Nigeria Society of Engineers (MNSE). He has contributed to the development of engineering in terms of successfully implementing various engineering projects and in conducting novel researches. He has attended many International Conferences and served creditably. His research areas include Mechatronics System Designs, Machine Tools, Manufacturing Engineering, Automation, Robotics, and Autotronics. He currently joined the Department of Mechatronics Engineering, Federal University Oye, Ekiti, Ekiti State, Nigeria as Lecturer I.

Selected Publications

Engr. Dr. Olatunde Ajani OYELARAN

Senior Lecturer
E-mail: olatunde.olatunde@fuoye.edu.ng; ajaniyelaran@gmail.com
Phone: +2348069768627, +2348028253912

Engr Dr Olatunde Ajani OYELARAN was born in Shendam Plateau State but of Ogbomoso Origin in Oyo State. He graduated from the prestigious Federal Polytechnic, Idah. He obtained Postgraduate Diploma and M. Eng Mechanical Engineering from Bayero University Kano, Nigeria and Ph.D Mechanical Engineering from Federal University of Agriculture, Abeokuta Nigeria. A registered Engineer with Council for the Regulation of Engineering in Nigeria (COREN). Corporate Member of the following societies and associations Nigerian Society of Engineers (NSE), International Association of Engineers (IAEng), Council for Renewable Energy of Nigeria (CREN), Nigerian Metallurgical Society (NMS), African Wind Energy Association among others. He has more than 10 years’ research experience at the Hydraulic Equipment Development Institute, Kano where he designed and developed a Bottle Neck Hydraulic Jack, Vertical Axis Roof Top Wind Turbine, Mini Powered Water Drilling Rig and tomatoes powder plant among others. He has also worked with the largest Automobile assembly plant in Africa National Truck Manufacturing Plant, Kano. He is a recipient of the 2012 Presidential Committee on Invention and Innovation award. His research interests are in the areas of Energy, Environment and Materials.

Selected journal Publications


Dr. Engr. Bayode Julius Olorunfemi obtained his B. Eng. in Agricultural Engineering from Federal University of Technology, Akure in 1991, M. Eng. in Production and Industrial Engineering from Federal University of Technology, Minna in 1998 and Ph.D. in Production Engineering from Federal University of Agriculture, Abeokuta in 2014. He is a COREN registered Engineer and a member of Nigeria Society of Engineers (NSE) and National Institute of Agricultural Engineers (NIAE). He has a long standing experience having started his Engineering career 22 years ago. He joined the service of Federal Ministry of Agriculture and Rural Development as an Agricultural Engineer II in 1993 and rose to the rank of an Assistant Director (Engineering) in 2012 and until his service was transferred to Federal University Oye-Ekiti in 2015. While in the Ministry, he supervised several multi-billion Naira projects and held other managerial and Administrative positions as a Federal Government staff. He had attended several Technical sections and Engineering workshops both within and outside this country. His area of research includes Computer aided Design, Computer Aided Management, Industrial and Production Engineering. He is an ordained Pastor of Christ Apostolic Church worldwide. He is happily married with children.

Some of his publications are:
Summary of Profile

Prof. Engr. OLANIYAN, Adesoji Matthew graduated with B.Eng, M.Eng and PhD in Agricultural Engineering from University of Ilorin, Nigeria in 1991, 1998 and 2006 respectively. Since 1998, he has been working on techniques, processes and equipment for processing agricultural and bioresources products to food, fibre and industrial raw materials. Dr. Olaniyan's principal area of research is Bioresources Processing and Food Process Engineering, where he has carried out a number of projects and published a number of papers in local and international journals. He joined the service of the University of Ilorin in 1998 as an Assistant Lecturer in the Department of Agricultural and Biosystems Engineering and rose to the position of a Senior Lecturer in 2009. Currently, he is an Associate Professor at the Department of Agricultural and Bioresources Engineering, Federal University Oye-Ekiti, Nigeria. Dr. Olaniyan has bagged several awards including the Award for the Best Paper (2007) in the Journal of Food Science and Technology, Mysore, India; Chinese Government Sponsorship (2008) for International Training Programme in Protected Agriculture at International Exchange Centre, Yangling, China; Netherlands Fellowship Programme (2009) for International Training programme in Milk Processing at Practical Training Centre, Onkerk, the Netherlands; and Postdoctoral Fellowship (2011) of the Academy of Sciences of Developing Countries.

Publications:

Engr. Dr. SATIMEHIN, Adesola Adebajo
Phone: +234(0)7032738029
Email: adesola.satimehin@fuoye.edu.ng
Office: Senior Lecturer

Summary of Profile

Engr. Dr. Adesola Adebajo Satimehin hails from Iju-Odo in Okitipupa LGA of Ondo State. He possesses the degrees of B.Sc. (1980) and M.Sc. (1985) in Agricultural Engineering from the University of Ibadan, and the degree PhD (2008) in Agricultural Processing and Storage Engineering from the University of Nigeria, Nsukka. His research areas of interest include Modeling heat and mass transfer during food drying operations; Food-Moisture Sorption and Food stability; Engineering properties of food and agricultural materials; Food and agricultural materials handling, processing and storage systems design; Food drying and food dryers design; Food wastes processing and conversion. Dr. Adesola Satimehin began his academic career in 1986 as an Assistant Lecturer at the Federal University of Agriculture, Makurdi and rose to the rank of Senior Lecturer in the Department of Agricultural and Environmental Engineering. He was on Sabbatical Appointment at the Federal University, Oye-Ekiti from March 2012 to May 2013. During this period, he served as the pioneer Head of the Department of Agricultural and Bioresources Engineering. He has again been offered a Tenure Appointment as Senior Lecturer with the University. Dr. Satimehin is a Fellow of the Nigerian Institution of Agricultural Engineers (NIAE) and is registered to practise engineering in Nigeria by the Council for Regulation of Engineering in Nigeria (COREN). As an expert in agro-processing, Dr. Satimehin is a National Consultant/Expert to United Nations Development Organisation (UNIDO) for whom in 2011, he designed a pilot linear rice processing plant at Obagaji in Agatu Local Government Area of Benue State. The rice processing plant has installed capacity of one metric tonne per hour of world-class de-stoned white rice. Dr. Satimehin was a member of a team of experts that carried out “A Study of the Proposed Adani/Omor Staple Crop Processing Zone” for the Agriculture Transformation Agenda of Nigeria. Dr. Satimehin has successfully supervised and is still supervising many M.Eng. Dissertations and PhD Thesis. He has authored (and co-authored) numerous scholarly articles in national and international journals. He has also presented scientific papers at international conferences such as the 4th European Drying Symposium Conference held in Paris from 2nd – 4th October 2013.

Publications:


Engr. OMOFUNMI Olorunwa Eric Obtained his bachelor of Engineering Degree in Agricultural Engineering at the Federal University of Technology, Akure in 1987. He proceeded to the University of Ibadan and obtained Master of Science in Agricultural Engineering (Farm Power and Machinery option) between 1990 and 1991. He also has a Doctor of Philosophy Degree (Ph.D) in Soil and Water Engineering from the Federal University of Agriculture, Abeokuta in 2015. He did the compulsory National Youth Service Corps (NYSC) at the University of Maiduguri, Borno state Nigeria between 1987 and 1988 and presently a Senior Lecturer in the department of Agricultural & Bio-Resources Engineering, Faculty of Engineering, Federal University Oye-Ekiti (FUOYE). He has Published many research articles in both International and local Journals and has attended many Academic Conferences and Workshops within and outside Nigeria. He has supervised many undergraduate final student projects and post graduate student researches.

Publications:


Dr. FAYOSE, Folasayo Titilola is an Agricultural Engineer with special interest in Food and Agricultural Processing Machinery, Design, Installation and New Products Development and Characterization. Nigeria. She holds B.Eng. (Hons), M.Eng, and Ph.D. in Agricultural Engineering. Dr. Fayose has bagged several awards including the Post Doctoral Fellowship of the African Women in Agricultural Research and Development (AWARD) and has published widely. Her current research focuses on Optimization and Product Development of Food and Feed Extrusion using Cassava and other locally sourced Ingredients. Dr. Fayose is a 2011 Fellow of the African Women in Agricultural Research and Development (AWARD), a professional development program sponsored by the United States Agency for International Development (USAID) and Bill and Melinda Gates Foundation. Also, she recently completed a Post Doc Research Fellowship Programme of the Tshwane University of Technology, Pretoria, South Africa. She was a recipient of the 2013 KIC Travel grant of the Nation Research Foundation (NRF) South Africa. She is a Registered Engineer. She has served in various capacities in public service and at tertiary institutions. Currently she is a Lecturer at the Federal University, Oye-Ekiti, Nigeria.

Publications:

ILESANMI, Oluwaseun Ayodele
Phone: -234(0)8039194139
Email: oluwaseun.ilesanmi@fuoye.edu.ng
Office: Lecturer I

Summary of Profile
Engr. Ilesanmi, O. A. is a Lecturer II in the Department of Agricultural and Bioresources Engineering, Federal University, Oye Ekiti. A graduate of Agricultural Engineering from University of Ilorin and obtained his M.Eng in Soil and Water Engineering from The Federal University of Technology, Akure. Prior to his current role he worked with a World Bank Funded Project, Fadama III in Ekiti State and was involved in the design of agricultural structures for farmers. He is currently carrying out his PhD research with focus on the Environment and Climate Change.

Publications:
Dr. Engr. Olawale O. AJIBOLA  
Senior Lecturer  
B.Eng., M.Eng., Ph.D (FUTA), MNSE, COREN Regd.  
E mail: olawale.ajibola@fuoye.edu.ng.  
Telephone: +234 8068790679.  

Dr. (Engr.) O.O. Ajibola graduated from the Federal University of Technology, Akure (FUTA) with Bachelor of Engineering (B.Eng), Master of Engineering (M.Eng) and Doctor of Philosophy (PhD) degrees in Metallurgical and Materials Engineering in 1995, 2008 and 2015. He is currently a Postdoctoral Research Fellow in the Department of Chemical Engineering, Faculty of Engineering and the Built Environments at the University of Johannesburg, South Africa. He is a member of Nigeria Society of Engineers and a COREN registered engineer. He has worked in various capacities for more 13 years as a Lecturer in the Department of Mineral Resources Engineering at Federal Polytechnic, Ado Ekiti. He had over 30 relevant academic publications in learned journals and conference proceedings. He joined the Federal University Oye-Ekiti in January, 2013 as a Lecturer II in the Department of Materials and Metallurgical Engineering. His research interests include Mineral Processing and Extractive Metallurgy, Cement and Refractory, Surface engineering, Corrosion and High Temperature Tribological. He had peer reviewed many publications in related fields in many famous academic journals.


Dr. Engr. Adebayo F. OWA  
Lecturer I, Materials and Metallurgical Engineering Dept.  
B. Eng., M. Eng., Ph.D (FUTA), MNMS, COREN Regd.  
E mail: adebayo.owa@fuoye.edu.ng

Dr. Engr. Adebayo F. Owa, was the best graduating student in Department of Metallurgical and Materials Engineering, Federal University of Technology, where he obtained his Bachelor of Engineering (B. Eng.), in 1995; with second class upper division. He also holds a master's degree in Mechanical Engineering (Production Option) in 2008 and a Doctorate degree (Ph.D) in Metallurgical and Materials Engineering; in 2017, from the same institution.  
He belongs to professional and scientific societies such as council for the regulation of Engineering practice in Nigeria (COREN), member of International Association of Engineers and Professional member of Material Society of Nigeria.  
He has worked in various capacities for 9½ years as a lecturer in the Department of Mechanical Engineering Technology, at Rufus Giwa Polytechnic, Owo, Ondo state. He had over 8 relevant academic publications in learned journals and 2 conference proceedings.  
He joined the Federal University Oye – Ekiti in January, 2014 as a lecturer II in the Department of Materials and Metallurgical Engineering. His area of interests includes; but not limited to synthesis of Bio-materials and Nano materials from renewable resources. Some of his publications include:  
4. Owa, A.F. (2005); Materials Science (Students’ aids to Fundamental concepts)  
5. Owa A.F. (2006); Students’ Activities manual on Polymer Science (A preliminary approach)

Engr. Oluwole D. ADIGUN  
Lecturer II, Materials & Metallurgical Engineering Dept.  
B.Eng.(FUTA), MSc (Sheffield), COREN Regd.  
E mail: oluwole.adigun@fuoye.edu.ng

Coupled with his work experience as Trainee Engineer at a Ceramic company in Suleja, Niger State, Nigeria, in 2006, Engr. O. D. Adigun received his B.Eng. degree in 2007 from the Federal University of Technology, Akure, and his Masters degree in Materials Science and Engineering in the University of Sheffield, United Kingdom, in 2016. As a lover of research, commitment and hard work, Engr. O. D. Adigun have accomplished a number of research studies, attended international and national conferences as well as workshops and served the University in various capacities since 2011.
Engr. Dr O.A. Adetayo graduated from Federal University of Technology Akure with a Bachelor of Engineering (B.Eng.) in Civil Engineering in 2003, he obtained both his Master degree in Civil Engineering from the University of Ibadan in 2007, and Doctor of Philosophy (Ph.D.), University of Ibadan, 2016. He is a member of Nigeria Society of Engineers (MNSE) and a registered member of the Council for the Regulation of Engineering in Nigeria (COREN). He has worked in the construction and telecommunication industries including Huawei Technologies Ltd (2005 – 2008). He is a practicing Engineer, lecturer and a researcher in Environmental, Structural and Materials Engineering. He joined the service of the Federal University, Oye Ekiti in 2013 as Lecturer II. The following are part of his research interests:

1) Development of new models of fire performance of structural materials use for construction.
2) Assessment of quality of drinking water in urban and rural areas.
4) Design and Construction of Environmentally Friendly Facilities

Teaching Areas: Structural and Materials Engineering.

Selected Publications
RESUME

BORISADE, Sunday Gbenga

Full Name: BORISADE, Sunday Gbenga
Date of Birth: 17th April, 1983
Place of Birth: Ado-Ekiti
Sex: Male
Local Government: Ijero
State of Origin: Ekiti State
Nationality: Nigeria
Cell Phone: 08035147597
Next of Kin: Borisade motolani; 08068717207
E-mail address: sunday.borisade@fuoye.edu.ng
Marital Status: Married
Number of Children: Three (3)

INSTITUTIONS ATTENDED WITH DATE
Christ Nursery and Primary School, Ado-Ekiti 1989-1995
Agbede Comprehensive College, Ise-Ekiti 2003-2003
Federal University of Technology, Akure 2003-2008
Federal University of Technology, Akure 2015-2018

ACADEMIC QUALIFICATIONS
Primary Six Leaving Certificate
Senior Secondary School Certificate

WORKING EXPERIENCE WITH DATE
Federal University Oye, Ekiti State Materials and Metallurgical Engineering Department

Position: LECTURER II

EXPERIENCE
➢ Teaching and Research
➢ Teaching student how to write laboratory report
➢ Supervise student during examination
➢ Marking and scoring student script
➢ Prepare laboratory manuals for student
➢ Attending Departmental Meeting
National Metallurgical Development Center, (NMDC)  
20 Rang Pam Street, Jos.  
Plateau State

Position: Engineer 1  
2011

EXPERIENCE

Responsibilities

➢ Carrying out the instructions/orders from the Managing Director  
➢ Supervision and controlling work of all the staffs under my control.  
➢ Carrying out metallurgical experiment such as: Microscope view Sample Mounting, Grinding, Polishing and Etching.  
➢ Preparing metallurgical samples for metallurgical testing.  
➢ Supervising the IT student

Continental Shipyard Apapa Dockyard, Lagos.

Position: Assistant Engineer  
2007

Responsibilities

➢ Casting of Ship Parts.  
➢ Welding and Fabrication of metals.  
➢ Painting and Coating of Ship part.  
➢ Carrying out Sand Blasting operation on Ship parts.  
➢ Carrying out Test on all the welding parts of ship.

PROFESSIONAL QUALIFICATIONS WITH DATE

The Council for the Regulation of Engineering in Nigeria (R.29571)  
2015  
The Nigeria Society of Engineer (NSC 31598)  
2014  
The National Association of Technologist in Engineering (C-5879)  
2014  
The International Association of Engineers (IAENG)  
2014

PUBLICATIONS:

Creep and thermal behavior of quarry dust-silicon carbide hybrid particles reinforced ZA-27 alloy composites using stir casting technique.  


(3) JIMOH, B.O AJIBOLA, O.O, BORISADE, S.G : (2015)  

Extra – Curricular Activities
Reading, Researching and playing Football

REFEREES

Dr Ajibola Olawale
Snr Lecturer,
Department of Materials and Metallurgical Engineering,
Federal University Oye,Oye Ekiti.

Dr Kayode Ogunleye PhD
Registrar,
Bowen University,
Iwo,
Osun State.

Dr Oyetunji Akinlabi
Professor
Department of Metallurgical and Materials Engineering,
Federal University of Technology, Akure.