



SSCT

"For Nation's Greater Heights"

S.1.1 acquisition of knowledge and theories based on the field of specialization/discipline;



BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (BSEE)

CMO No. 87. S. of 2017
Effective A.Y 2020-2021

First Year					
First Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
MATH 111	Calculus 1	5	0	5	None
ES 133	Computer-aided Drafting	0	2	2	None
GE Math	Mathematics in the Modern World	5	0	5	None
GE USelf	Understanding the Self	3	1	4	None
CHEM 121	Chemistry for Engineers	3	0	3	None
IC 102	Introduction to Electrical Engineering	3	0	3	None
PE 1	Physical Fitness & Health	2	0	2	None
NSTP 1	National Service Training Program 1	3	0	3	None
Sub- Total		24	3	27	

Second Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
Math 112	Calculus 2	5	0	5	Math 111
Phys 122	Physics for Engineers	3	1	4	Math 111; Co-requisite Math 112
GE Entrep	The Entrepreneurial Mind	3	0	3	None
GE IT	Living in the IT Era	3	0	3	None
CPE 143	Computer Programming	0	1	1	None
GE Rizal	Life and Works of Rizal	3	0	3	None
GE PurCom	Purposive Communication	3	0	3	None
PE 2	Rhythmic Activities	2	0	2	None
NSTP 2	National Service Training Program 2	3	0	3	NSTP 1
Sub- Total		25	2	27	

Second Year					
First Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
Math 113	Differential Equations	3	0	3	Math 112
EE 201	Electrical Circuits 1	3	1	4	Phys 122; Math 112
ES 255	Engineering Mechanics	3	0	3	Phys 122
Math 114	Engineering Data Analysis	3	0	3	Math 111
ES 302	Fluid Mechanics	2	0	2	Phys 122
GE ArtApp	Art Appreciation	3	0	3	None
GE EnviSci	Environmental Science	3	0	3	None
PE 3	PE 3	2	0	2	None
Sub- Total		22	1	23	

Second Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
Math 161	Engineering Mathematics for EE	3	0	3	Math 113
EE 202	Electrical Circuits 2	3	1	4	EE 201
ECE 201	Electronic Circuits: Devices and Analysis	3	1	4	EE 201
ES 262	Basic Thermodynamics	2	0	2	Phys 122
ES 137	Engineering Economics	3	0	3	Math 114
ECE 252	Electromagnetics	4	0	4	Phys 122; Math 113
GE Eth	Ethics	3	0	3	None
PE 4	PE 4	2	0	2	None
Sub- Total		23	2	25	

Third Year					
First Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
EE 301	Numerical Methods and Analysis	2	1	3	Math 161
ECE 371	Logic Circuits and Switching Theory	3	1	4	ECE 201
ES 246	Environmental Science and Engineering	3	0	3	None
GE STS	Science, Technology and Society	3	0	3	None
EE 311	Industrial Electronics	3	1	4	ECE 201
EE 312	Fundamentals of Electronic Communications	3	0	3	ECE 201
EE 302	Electrical Machines 1	2	0	2	ECE 252; EE 202
ES 261	Fundamentals of Deformable Bodies	2	0	2	ES 255
Sub- Total		21	3	24	

Second Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
CpE 371	Microprocessor Systems	3	1	4	ECE 371
EE 304	Electrical Apparatus and Devices	2	1	3	EE 202
EE 303	Electrical Machines 2	3	1	4	EE 302
ES 301	Basic Occupational Safety and Health	3	0	3	3rd year standing
ES 138	Technopreneurship	3	0	3	4 th year standing
EE 305	EE Law, Codes, and Professional Ethics	2	0	2	GE Eth
ECE 357	Feedback and Control Systems	3	0	3	Math 161; ECE 201
GE ConWorld	Contemporary World	3	0	3	None
Sub- Total		22	3	25	

Summer					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
Practicum	On-the-Job Training	3	240	2	4th Year Standing
Sub- Total		3	240	2	

Fourth Year First Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
ES 142	Materials Science and Engineering	3	0	3	CHEM 121; ES 261
EE 401	Electrical Standards and Practices	0	1	1	EE 305
EE 402	Electrical Systems and Illumination Engineering Design	3	2	5	EE 303
EE 481	Power Systems - Generation and Transmission	3	0	3	4 th year standing
EE 164	Management of Engineering Projects	2	0	2	EE 137
ES 140	Research Methods	0	1	1	Math 114; GE PurCom
EE 403	Instrumentation and Control	2	1	3	ECE 357
IC 105	EE REVIEW 1	2	0	2	4 th year standing
Sub- Total		15	5	20	

Second Semester					
Course Code	Descriptive Title	Lec	Lab	Units	Pre-requisite
EE 431	Power Systems Analysis	3	1	4	EE 401
EE 432	Fundamentals of Power Plant Engineering Design	0	1	1	Co-requisite: EE 431
EE 433	Distribution Systems and Substation Design	2	1	3	Co-requisite: EE 431
EE 482	Power Systems - Distribution System and Supply	3	0	3	EE 481
EE 422	Research Project or Capstone Design Project for EE	0	1	1	ES 142
ES 484	Seminars/Colloquia & Field Trips	0	1	1	4 th year standing
IC 106	EE REVIEW 2	2	0	2	4 th year standing
GE Hist	Readings in Philippine History	3	0	3	NONE
Sub- Total		13	5	18	
Grand Total		165	284	188	

SUMMARY		Units
I. Technical Courses		
A. Mathematics		16
B. Natural/Physical Sciences		6
C. Basic Engineering Sciences		11
D. Allied Courses		39
E. Professional Courses		52
F. Electives		6
	Sub-Total	132
II. Non-Technical Courses		
A. GE Core Courses		24
B. Electives		9
C. Mandated Courses		3
D. Physical Education		8
E. NSTP		6
	Sub-Total	50
III. Institutional Courses		
A. Introduction to Electrical Engineering		2
B. EE Review 1		2
C. EE Review 2		2
	Sub-Total	6
	Grand Total	188

Prepared by:

ENGR. JOSELITO BALDAPAN, PEE
Program Chair, BSEE

Noted by:

CARLOS H. DONOSO, EdD
Campus Director, Surigao City Campus

Checked and Reviewed by:

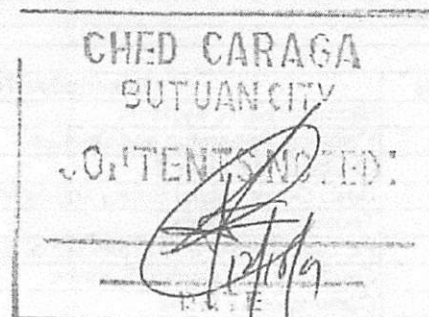
ENGR. ROBERT R. BACARRO, MECE, MBA
Dean, CEIT

Recommended by:

EMMYLOU A. BORJA, EdD
VP for Academic Affairs

Approved by:

GREGORIO Z. GAMBOA, JR., EdD
College President





"For Nation's Greater Heights"

EXCERPT FROM THE MINUTES OF THE 83rd REGULAR BOARD OF TRUSTEES MEETING HELD ON DECEMBER 20, 2019 AT THE CONFERENCE ROOM, PARK INN BY RADISSON, DAVAO CITY

After the discussion, the Board passed:

Resolution No. 126 S. 2019

Approving the Revised Curriculum for Undergraduate Programs AY 2019-2020 Subject to Further Revision

APPROVED

Certified true and correct:

ROWENA AL PLANDO, PhD
 Board Secretary V

Attested:

GREGORIO Z. GAMBOA, JR. EdD
 Vice Chair, SSCT-BOT
 College President



Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION
CARAGA ADMINISTRATIVE REGION

December 18, 2019

DEC 18 2019

10:44 pm

DR. GREGORIO Z. GAMBOA, JR.
University President
Sungao State College of Technology
Narciso Street, Sungao City

Dear Dr. Gamboa:

Greetings from CHED Caraga!

This is to respectfully return to you the following CHED-noted curricula submitted to this Office:

1. Bachelor of Science in Tourism Management
2. Bachelor of Science in Hospitality Management
3. Bachelor of Technical-Vocational Teacher Education
Major in Electrical Technology
4. Bachelor of Technical-Vocational Teacher Education
Major in Food and Service Management
5. Bachelor of Elementary Education
6. Bachelor of Secondary Education Major in Mathematics
7. Bachelor of Secondary Education Major in Filipino
8. Bachelor of Secondary Education Major in English
9. Bachelor of Secondary Education Major in Sciences
10. Bachelor of Physical Education
11. Bachelor of Arts in English Language
12. Bachelor of Science in Information Technology
13. Bachelor of Science in Information System
14. Bachelor of Science in Computer Science
15. Bachelor of Science in Mathematics
16. Bachelor of Science in Marine Biology
17. Bachelor of Science in Environmental Science
18. Bachelor of Science in Agroforestry
19. Bachelor of Science in Agricultural Technology
20. Bachelor of Technology and Livelihood Major in Agri-Fishery Arts
21. Bachelor of Science in Industrial Technology Major in Electrical Technology
22. Bachelor of Science in Industrial Technology Major in Heating, Ventilation, Air Conditioning and Refrigeration Technology
23. Bachelor of Science in Industrial Technology Major in Architectural Drafting Technology
24. Bachelor of Science in Industrial Technology Major in Electronics Technology
25. Bachelor of Science in Industrial Technology Major in Welding and Fabrication Technology
26. Bachelor of Science in Industrial Technology Major in Mechanical Technology
27. Bachelor of Science in Industrial Technology Major in Automotive Technology
28. Bachelor of Science in AgroForestry
29. Bachelor of Science in Electronics Engineering

HEDC Building, CSU Main Campus, Ampayon, Butuan City, Agusan del Norte 8600
Tel. Nos. (085) 342-5253 / 817-0930 / 815-3699 / 815-3698 / 816-2409 / 816-2406 (fax)
Email Address: chedcaraga@ched.gov.ph



Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION
CARAGA ADMINISTRATIVE REGION

30. Bachelor of Science in Electrical Engineering
31. Bachelor of Science in Computer Engineering
32. Bachelor of Science in Civil Engineering
33. Bachelor of Science in Fisheries

Thank You.

Very truly yours,

LEONIDA S. CALAGUI, PhD, CESO III
Director IV

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Minutes of the Joint Academic and Administrative Council Meeting held on April 13, 2018 at the Old College Library, SSCT, Surigao City

I Preliminary Matters

The Joint Administrative and Academic Council Meeting started with a Doxology followed by the singing of the National Anthem through PowerPoint Presentation.

a. Roll Call and Determination Of Quorum

The College President, Dr. Gregorio Z. Gamboa, Jr. personally called the roll.

Dr. Gregorio said that those who logged in in the morning but were not present in the meeting shall be marked absent.

The Secretary then announced that the meeting had a quorum with Ninety-eight (98) Academic and Administrative Council members in attendance out of One Hundred Fifty-seven (157).

b. Call to Order

The Presiding Chair, Dr. Gregorio Z. Gamboa Jr. called the meeting to order at 9:40 A.M.

c. Approval of the Provisional Agenda

The Presiding Chair enumerated the following agenda to be included in the other matters:

A. FISCAL MATTERS

- Request Approval on the Granting of Honorarium to SSCT Journal of Science and Technology Editorial Board Members and Peer Reviewers

B. ACADEMIC MATTERS

- List of Candidates for Graduation as of March 2018

C. ADMINISTRATIVE MATTERS

- Request Approval for the Construction/Repair/Rehabilitation of Academic Building (PhP 5,000,000.00)
- Request Approval for the Purchase of Various Equipment Outlay(PhP5, 000,000.00)
- MOA between DOLE, Caraga Regional Office, Butuan City and SSCT

D. OTHER MATTERS (FOR INFORMATION)

- Presentation of Feasibility Study on the Proposed Establishment of Extension-SSCT, City Campus in Claver, Surigao del Norte
- MOU between SSCT and Komisyon sa Wikang Filipino on the Proposed Establishment of Sentro ng Wika at Kultura (SWK)

The College President, Dr. Gregorio Z. Gamboa, Jr. asked the Councils if there are other matters they want to include in the agenda.

The following were:

- 60 • Proposed Occupational Safety and Hazard of Policy
61 Proponent: Mr. Manuel R. Arcon
62
- 63 • Implementation of Curricular Programs based on the New Policies, Standards and
64 Guidelines of CHED
65 Proponent: Dr. Ronita E. Talingting
66
- 67 • Dr. Roberto C. Buenaflor requested that the following shall be included in the other
68 matters:
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- 70 a. Updates of the previous meeting.
71 b. Proposed Amendments of Graduate School Manual
72 c. Imposition of Fines for those members of the Academic and Administrative
73 Council who will be absent during Academic and Administrative Council Meetings
74 without valid reason.
- 75 • Information on Disaster Resilience Seminar led by Cagayan State University by Dr.
76 Teresita P. Senados
77 • Proposed infrastructure Projects by Administration
78 Proponent : Engr. Virne P. Portugues
79

80 The Councils passed

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82 **Resolution No. 03 s. 2018**
83 **Adopting the Agenda for the Joint Administrative and**
84 **Academic Council Meeting**
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87 **d. Reading of the Previous Minutes**
88

89 The College President dispensed the reading of the minutes and immediately
90 proceeded to the Chair's Privilege.
91

92 **Noted**
93

94 **e. Chair's Privilege**
95

96 The College President, Dr. Gregorio Z. Gamboa, Jr. was pleased to inform the
97 Councils of the following developments to wit:
98

- 99 • SSCT is now SUC Level III.
100 • House Bill 5150 is now a R.A. 11010 after the President of the Republic of the
101 Philippines signed HB 5150 into law on March 27, 2018
102
- 103 Dr. Gamboa informed the Council members that several activities shall be conducted
104 to wit:
- 105 • April 20, 2018 -SSCT shall join a caravan with Comm. Prospero de Vera.
106 • April 25, 2018 -Meeting with the 4 SUCs in Caraga with the presence of CHED
107 Regional Director, Dr. Maricar R. Casquejo at the Accreditation Center,SSCT,
108 Surigao City.
109 • May 7-8, 2018-SSCT shall undergo Institutional Sustainability Assessment (ISA)
110 with CHED in Siargao.
111 • May 7-11, 2018-Level III AACCCUP Accreditation
112 • September 2018-CHED Caraga Evaluation for SSCT's University application.
113 • October 2018-CHED Central Office shall visit SSCT for University Accreditation.
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118 The College President encouraged every member to cooperate and help in order for
 119 SSCT's vision to become a reality.

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 121

Noted

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123 **NEW BUSINESS**

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125 **A. FISCAL MATTERS**

- 126 • Request Approval on the Granting of Honorarium to SSCT Journal of Science and
 127 Technology Editorial Board Members and Peer Reviewers

128

129 The proposal was presented by the Research Director, Dr. Teresita P. Senados .

130

131 Dr. Roberto C. Buenaflor said that in other SUCs, it is the researcher who shall pay the
 132 honorarium of the Editorial Board members and Peer Reviewers.

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134 The College President answered that it is the College who shall shoulder the honorarium
 135 and that the paper shall then be owned by the College.

136

137 Dr. Gamboa emphasized that the invention shall be owned by the College.

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Noted

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141 Mr. Jonas Robert Miranda said that a MOA shall be made between SSCT and peer
 142 reviewer.

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Noted

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146 Dr. Mauricio S. Adlaon asked if the researchers from other SUCs etc shall pay for their
 147 paper to be included in the Journal.

148

149 The College President answered yes.

150

151 Mr. Adriano C. Patac explained that there shall be incentives if SSCT's Journal shall
 152 qualify. Further, he said that if the school would want to earn 3 points, only 10% of the
 153 papers to be published in the Journal should come from SSCT and that only 1 point shall
 154 be earned by the school if 50% of the papers published is owned by SSCT.

155

156

Noted

157

158 After a thorough deliberation, the Councils passed

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Resolution No. 4 s. 2018

161

**Approving the Granting of Honorarium to SSCT Journal of Science and
 162 Technology Editorial Board Members and Peer Reviewers**

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APPROVED

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166 **B. ACADEMIC MATTERS**

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- 168 • List of Candidates for Graduation as of March 2018

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City Campus

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The College Registrar, Ms. Claret D. Ruaya presented the list of candidates for
 172 Graduation as of March 2018 in the City Campus.

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176 Ms. Ruaya disclosed that there are One Thousand Nine Hundred Fifty-five (1955)
 177 candidates for graduation in the City campus.

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 179 **Noted**

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 181 **Del Carmen Campus**

182 Ms. Maristela Ruaya, Registrar of Del Carmen Campus presented the list of
 183 candidates for graduation as of March 2018 in Del Carmen Campus.
 184 Ms. Ruaya informed the Councils that there are One Hundred Ninety (190)
 185 candidates for graduation as of March 2018 in Del Carmen Campus.
 186

187
 188 **Malimono Campus**

189 Malimono Campus has One Hundred Six c(108) candidates for graduation as of
 190 March 2018.
 191

192
 193 **Mainit Campus**

194 There are Three Hundred Twenty-nine (329) candidates for graduation as of March
 195 2018 in Mainit Campus.
 196

197 Dr. Buenaflor said to remove the word "tentative" to ensure that they are legitimate
 198 candidates for graduation.
 199

200
 201 **Noted**

202 After the discussion, Dr. Ronita E. Talingting moved for the approval of the list of
 203 candidates for graduation and was unanimously seconded.
 204

205 The Councils passed

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 207 **Resolution No. 6 s. 2018**
 208 **Approving the List of Candidates for Graduation as of May 2018**

209
 210 **APPROVED**

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 213 **C. ADMINISTRATIVE MATTERS**

- 214 • Request Approval for the Construction/Repair/Rehabilitation of Academic Building
 215 (PhP 5,000,000.00)
 216 • Request Approval for the Purchase of Various Equipment Outlay(PhP5, 000,000.00)
 217

218 The two proposals were presented by Engr. Vime P. Portugues.
 219

220 The College President, Dr. Gregorio Z. Gamboa, Jr. said that the budget comes from
 221 the 10M insertion from Sen. Loren Legarda.
 222

223 After the discussion, the Councils passed

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 225 **Resolution No. 6 s. 2018**
 226 **Approving the Proposed Construction/Repair/Rehabilitation**
 227 **of Academic Building (PhP 5,000,000.00)**

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 229 **APPROVED**

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Resolution No. 7 s. 2018
Approving the Proposed Purchase of Various Equipment Outlay
(PhP5, 000,000.00)

APPROVED

- MOA between DOLE, Caraga Regional Office, Butuan City and SSCT

The College President explained that the purpose of the said MOA between DOLE and SSCT is to establish a school-based Public Employment Service Office in the school.

After the discussion, the Councils passed

Resolution No. 8 s. 2018
Approving the MOA between DOLE, Caraga Regional Office,
Butuan City and SSCT

APPROVED

D. OTHER MATTERS (FOR INFORMATION)

- Presentation of Feasibility Study on the Proposed Establishment of Extension-SSCT, City Campus in Claver, Surigao del Norte

The Vice President for Academic Affairs, Dr. Ronita E. Talingting informed that the proposed establishment if approved shall start in August 2018.

Mr. Charles Ferol presented the result of the Feasibility Study.

The Council said that FS shall include the following: Marketability, Financial Aspect, Technical Aspect, Course Preference Survey, Budgetary Requirements, Operational Requirements or Viability of Operation.

The College President informed the Councils that LGU Claver shall offer an area for the establishment of the school building, building, two (2) million pesos per year and a grandia.

After the discussion, the Councils passed

Resolution No. 09 S. 2018
Endorsing to the Board the Feasibility Study on the Proposed Establishment of
Extension-SSCT, City Campus in Claver, Surigao del Norte

APPROVED

- MOU between SSCT and Komisyon sa Wikang Filipino on the Proposed Establishment of Sentro ng Wika at Kultura (SWK)

The College President, Dr. Gregorio Z. Gamboa, Jr. informed the Council that Sentro ng Wika at Kultura shall be established in SSCT and that SSCT can benefit on the establishment of the same.

Without further discussion, the Councils passed

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Resolution No. 10 s. 2018
Approving the Memorandum of Understanding (MOU) between SSCT and
Komisyon sa Wikang Filipino on the Proposed Establishment of
Sentro ng Wika at Kultura (SWK)

APPROVED

- **Proposed Occupational Safety and Hazard of Policy**

Mr. Manuel Arcon said that there is a need for the College to have an Occupational Safety and Hazard Policy.

Dr. Gamboa advised that a committee to review the same shall be created.

After the discussion, the Councils passed

Resolution No. 11 s. 2018
Approving the Creation of a Committee to Review the Proposed
Occupational Safety and Hazard of Policy

APPROVED

- **Implementation of Curricular Programs based on the New Policies, Standards and Guidelines of CHED**

The Vice President for Academic Affairs, Dr. Ronita E. Talingting informed the Councils that a Curriculum Review was conducted on February 9, 2018 at the Parkway Hotel, Surigao City.

This was attended by CHED Specialists, College Deans, Program Chairs, industry experts, DepEd Representatives, student leaders and parents.

The conduct of the same was in preparation for the new general education curriculum and CHED's framework for outcomes based on the new Policies, Standards and Guidelines to be implemented SY 2018-2019.

After the discussion, the Councils passed

Resolution No. 12 S. 2018
Endorsing to the Board the Proposed Implementation of Curricular Programs
based on the new Policies, Standards and Guidelines of CHED

APPROVED

- **Information on Disaster Resilience Mapping led by Cagayan State University**

Dr. Teresita P. Senados informed the Councils a Disaster Resilience Mapping for Mission-Critical Infrastructures and Investments of SUCs in the Philippines shall be conducted. The project duration is from March 2018 to February 2020.

Dr. Senados said that the same is a collaborative research among 17 HEIs/SUCs led by Cagayan State University-Climate Change Program office and that Caraga is represented by SSCT.

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The funding agency is the Commission on Higher Education (CHED)-K-12 Program Management Unit under the DARE TO Program

After the discussion, the Councils passed

Resolution No. 13 S. 2018
Approving the Participation of SSCT to the Disaster Resilience Mapping for Mission-Critical Infrastructures and Investments of SUCs in the Philippines

APPROVED

- Proposed infrastructure Projects by Administration

Engr. Virne P. Portugues presented the Proposed Infrastructure by Administration.

After the discussion, the Councils passed

Resolution No. 14 S. 2018
Approving the Proposed Infrastructure Projects by Administration

CITY CAMPUS

- Improvement of Technology Building (Php3,871,000.00)

MAINIT CAMPUS

- SSCT Mainit Campus Pathway/Covered Walk (PhP1,500,000.00)
- Community Outreach Center (PhP 1,000,000.00)
- Rehabilitation of SSCT Mainit Campus Road (PhP2,000,000.00)
- Rehabilitation of Mango Nursery Propagation Building (PhP800,000.00)
- Rehabilitation of Business Affairs Office (PhP600,000.00)
- Improvement and Repair of Crop Processing Plant (PhP500,000.00)
- Improvement and Repair of Academic Building (PhP3,000,000.00)
- Improvement and Repair of Swine Production (PhP2,000,000.00)
- Improvement and Repair of Vermiculture Building (PhP1,500,000.00)
- Improvement and Repair of Poultry Building (PhP1,000,000.00)

DEL CARMEN CAMPUS

- Renovation of Cafeteria and Bakery Building (PhP1,268,000.00)
- Renovation of Automotive and Electronics Technology Building (PhP1,268,000.00)
- Renovation of Civil Technology and Supply Office Building (PhP1,268,000.00)
- Renovation of Drafting and Electrical Technology Building (PhP1,268,000.00)
- Rehabilitation of IT and Call Center Building (PhP11,431,000.00)
- Rehabilitation of SSCT-Mini Hotel (phP19,391,000.00)
- Improvement of Two (2) Storey Shop Building (PhP31,983,000.00)

APPROVED

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- Updates of the previous meeting

Dr. Roberto C. Buenaflor said that the Councils need to know about the resolutions passed during the previous meeting and updates on the same if it is implemented or not.

Noted

- Proposed Amendments of Graduate School Manual

Dr. Buenaflor asked on the updates on the proposed amendments of the Graduate School Manual.

The College President said that the same be presented on the next meeting.

Noted

- With regard to non-attendance of Council members during meetings, Dr. Roberto C. Buenaflor proposed for the imposition of fines to those members of the Academic and Administrative Council who will be absent during Academic and Administrative Council Meetings without valid reason.

The College President commissioned Dr. Elvis P. Patulin for the same.

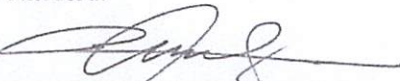
Noted

With nothing more to discuss, the meeting was adjourned at 11:25 A.M.

Certified Correct:


 ROWENA A. PLANDO, PhD
 College and Board Secretary

Attested:

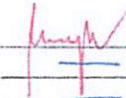



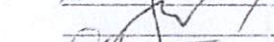
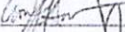
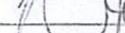

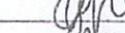

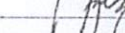
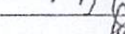


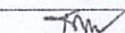
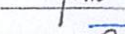
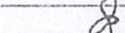
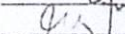
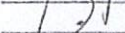
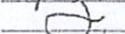

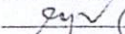
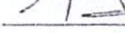




 GREGORIO Z. GAMBOA, JR., EdD
 College President

98/157



ACADEMIC COUNCIL MEETING

ATTENDANCE

1. Professor VI	:	Buenaflor, Roberto C.	
2. Professor II	:	Donoso, Carlos H.	
3. Professor I	:	Buot, Nenita S.	
4. Associate Professor V	:	Posesano, Georgito G.	
	:	Borja, Emmylou A.	
	:	Cordita, Amefiel C.	
	:	Jabonero, Jhane R.	
	:	Donoso, Antonette B.	
	:	Lumintac, Maria Tavita Q.	
	:	Paglinawan, Esperanza P.	
5. Associate Professor IV	:	Patulin, Elvis P.	
	:	Talingting, Ronita E.	
	:	Vernal, Hermogena V.	
	:	Alvarez, Alex E.	
	:	Besto, Eddie L.	
6. Associate Professor III	:	Cagas, Unife O.	
	:	Gonzales, Evelyn AX	
	:	Senados, Teresita P.	
	:	Tan, Renee C.	
	:	Arcon, Cecilia E.	
	:	Ebol, Emalina I.	
	:	Litang, Leonidisa S.	
	:	Miranda, Jonas Robert L.	
	:	Ravelo, Lona D.	
	:	Sabejon, Evangeline P.	
	:	Seniel, Destre A.	

7. Associate Professor II

: Acero, Je. B.
Buenaflor, Elesia B.
Dalaygon, Cases D.
Ebarsabal, Gideon A.
Laid, Roberto
Maghuyop, Alicia Z.
Patac, Louida P.
Sepe, Elsie M.
Sunico, Romy Jun A.
Tanguihan, Lucille G.

8. Associate Professor I

: Adlaon, Mauricio S.
Alaba, Porferio P.
Bayang, Eliza E.
Espaldon, Alexis P.
Gomez, Bernard C.
Maglinte, Romana M.
Andaluz, Rosanne E.
Botoy, Gina C.
Caadan, Julius G.
Catacutan, Marivel M.
Comon, Deny V.
Dela Cruz, Romel C.
Descarten, Randy O.
Divinagracia, Arne M.
Docoy, Rudy C.
Docoy, Lucihida M.
Ebarsabal, Jeanette L.
Espaldon, Judita R.
Gases, Cecilia C.
Guerra, Maria Fe C.
Lincuna, Arlene P.
Malicay, Leonielyn C.
Patac, Adriano V.
Reyna, Ritchie A.
Salvador, Nelia S.
Salvador, Emmanuel R.
Talingting, Gavino, Jr. B.
Toledo, Teresita L.

9. Assistant Professor IV

a. Assistant Professor III

: Arcaya, Rosemarie C.

Handwritten signatures and initials on lined paper, including names like "Acero", "Buenaflor", "Dalaygon", "Ebarsabal", "Laid", "Maghuyop", "Patac", "Sepe", "Sunico", "Tanguihan", "Adlaon", "Alaba", "Bayang", "Espaldon", "Gomez", "Maglinte", "Andaluz", "Botoy", "Caadan", "Catacutan", "Comon", "Dela Cruz", "Descarten", "Divinagracia", "Docoy", "Ebarsabal", "Espaldon", "Gases", "Guerra", "Lincuna", "Malicay", "Patac", "Reyna", "Salvador", "Talingting", "Toledo", and "Arcaya".

10. Assistant Professor II

Badiola, Ferdinand A.
Besinio, Leopoldo, Jr. G.
Buba, Ruel T.
Carnicer, Marilou B.
Catacutan, Rogelio R.
Causing, Pilmore M.
Cavite, Iryn E.
Chua, Ruel G.
Dela Cerna, Monalee A.
Delito, Eleanore Mitsuo S.
Diaz, Annabelle N.
Doligol, Teresita C.
Echin, Elma C.
Felicio, Carmenchita P.
Galido, Elsie P.
Gomez, Venchita B.
Ladia, Alberto D.
Menor, Elizabeth S.
Nala, Rene A.
Nemenzo, Alnie A.
Noguerra, Crispin, Jr. P.
Perez, Alicia L.
Plando, Ireneo Jr. C.
Ruaya, Perfecto, Jr. R.
Subang, Reynaldo M.
Sulima, Rolan A.
Ulbis, Maria Fe H.
Caba, Ailyn B.
Conde, Aurora D.
Deniega, Susan S.
Escauso, Joey G.
Fabroa, Hayde D.
Flores, Adelaida C.
Gomez, Nilo U.
Gumato, Edwin C.
Longos, Bonifacio D.
Madelo, Aurea M.
Magno, Perlita S.
Morite, Analyn S.

[Handwritten signatures and initials on lined paper]

11. Assistant Professor I

Mozar, Jr. Ruth D.
Quiachon, Marjorie T.
Salvador, Donald C.
Sinaca, Elsie M.
Talavera, Fortunato R.
Tiu, Celso S.
Villamor, Tita P.
Villegas, Marilyn S.
Ampater, Tito P.
Arcon, Manuel R.
Bagayas, Marinette M.
Bonotan, George S.
Borja, Ely E.
Codilla, Lope U.
Comandante, Frustouso G.
Conversion, Luciano L.
Cortina, Leonardo A.
Deniega, Avelino A.
Dialde, Floria C.
Escobal, Edwin C.
Escultor, Gemma R.
Gingo, Verna L.
Mag-usara, Arvin E.
Masuhay, Edilmar P.
Montejo, Amor C.
Navarro, Marlito P.
Paredes, Judel C.
Paulines, Mignonette M.
Portugues, Virne P.
Ratunil, Virgilio, Jr. V.
Rivas, Rosalyn A.
Ruaya, Maristela L.
Sal, Jerlou B.
Septimo, Teresita T.
Sinaca, Mateo E.
Yangson, Catherine L.
Ylaya, Vrian Jay V.

[Handwritten signatures in blue ink on lined paper]

[Faint handwritten notes or numbers]



ADMINISTRATIVE COUNCIL MEETING

ATTENDANCE

1. VP Academic Affairs	:	Dr. Ronita E. Talingting	
2. VP Administration	:	Dr. Gideon A. Ebarsabal	
3. VP Research, Development & Extension	:	Dr. Emmylou A. Borja	
4. Dean, CIT	:	Dr. Elesia B. Buenaflor	
5. Dean, Arts & Sciences	:	Dr. Elvis P. Patulin	
6. Dean, Teacher Education	:	Dr. Annabelle N. Diaz	
7. Dean, Engineering & IT	:	Engr. Alexis P. Espaldon	
8. Dean, Graduate Studies	:	Dr. Ronita E. Talingting	
9. Planning Officer	:	Dr. Mauricio S. Adlaon	
10. In - Charge, Accreditation	:	Ms. Amor C. Montejo	
11. Guidance Counselor	:	Ms. Quincy C. Dumanig/Clarence D. Enoy	
12. Director, Student Affairs	:	Ms. Maria Fe C. Guerra	
13. College Registrar	:	Ms. Claret D. Ruaya	
14. College Librarian	:	Ms. Ivy B. Mabanto/Lorena Badiola	
15. College Nurse	:	Ms. Christine Meg M. Villegas	
16. Director, Research and Development	:	Dr. Teresita P. Senados	
17. Director, Extension Services	:	Engr. Evangeline P. Sabejon	
18. Director, Mainit Campus	:	Dr. Hermogena V. Vernal	
19. Director, Del Carmen Campus	:	Dr. Romy Jun A. Sunico	
20. Director, Malimono Campus	:	Dr. Eddie L. Besto	
21. Director, City Campus	:	Dr. Carlos H. Donoso	
22. Director, Quality Management	:	Dr. Roberto C. Buenaflor	
23. Director, Ancillary Services	:	Mr. Donald C. Salvador	
24. Director, Special Programs (incl TCC, TESDA)	:	Dr. Georgito G. Posesano	
25. Director, Sports & Wellness, Culture & Arts	:	Ms. Eleanore Mitsu S. Delito	
26. NSTP Director	:	Mr. Ireneo C. Plando, Jr.	



"For Nation's Greater Heights"

Republic of the Philippines
SURIGAO STATE COLLEGE OF TECHNOLOGY
Narciso St., Surigao City, Philippines, 8400
<http://www.ssct.edu.ph>

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COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY
City Campus
First Semester, Academic Year 2021-2022

Outcomes Based-Education (OBE) Syllabus in EE 121- Elective 3
Energy Supply and Demand Analysis
Course Credit: 3.0 units (54 hrs)

Institutional Vision, Mission, and Goals

Vision:

An innovative and technologically-advanced State College in Caraga.

Mission:

To provide relevant,

- a. high quality and sustainable instruction,
- b. research, production and extension programs and
- c. services within a culture of credible and responsive institutional governance.

Goals:

- 1. Foster application of the discipline and provide its learner with industry-based training and education particularly in engineering, technology and fisheries.
- 2. Conduct and utilize studies for the development of new products, systems and services relevant to Philippine life and of the global village.
- 3. Promote transfer of technology and spread useful technical skills, thus empowering its learners and their activities.

SSCT Core Values

Service-Oriented Socially Responsive Committed Transformational

SSCT Quality Policy

Surigao State College of Technology provides quality instruction, research, extension programs and production services to satisfy its customers by responding to their needs and expectations and continually improving its quality management system.



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Institutional Graduate Attributes (IGA)

:

- Visionary Leader
- Effective Communicator
- Competent Technologist
- Self-Directed Lifelong Learner

Program Goals

The Electrical Engineering program aims to design and apply the generation, transmission, and distribution of electrical energy to produce competent engineers that exhibit positive work ethics and flexibility in work conditions for the development of Caraga.

Program Educational Objectives (PEO) and Relationship to Institutional Mission

Program Educational Objectives (PEO)	Mission		
	a	b	c
EE-PEO1. Demonstrate professionalism in electrical engineering and apply professional ethics thru communication and collaboration.	/	/	/
EE-PEO2. Use appropriate techniques, resources, and modern tools necessary for analysis, design, and modeling of complex electrical systems	/	/	/
EE-PEO3. Plan, lead, and implement designated tasks, interact with other engineering professionals, and take leadership roles in electrical engineering organization.	/	/	/
EE-PEO4. Engage in lifelong learning able to discover new opportunities for continuing personal and professional development in electrical engineering	/	/	/

Program Outcomes (PO) and Relationship to Program Educational Objectives (PEO)

Program Outcomes (PO)	Program Educational Objectives (PEO)			
	1	2	3	4
EE-POa. Apply knowledge of mathematics and sciences to solve complex engineering problems				
EE-POb. Develop and conduct appropriate experimentation, analyze and interpret data				
EE-POc. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical,	/	/	/	/



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health and safety, manufacturability, and sustainability, in accordance with standards				
EE-POd. Function effectively on multi-disciplinary and multi-cultural teams that establish goals, plan tasks, and meet deadlines				
EE-POe. Identify, formulate, and solve complex problems in electrical engineering				
EE-POf. Recognize ethical and professional responsibilities in engineering practice	/	/	/	/
EE-POg. Communicate effectively with a range of audiences	/	/	/	/
EE-POh. Understand the impact of engineering solutions in a global, economic, environmental, and societal context				
EE-POi. Recognize the need for additional knowledge and engage in lifelong learning	/	/	/	/
EE-POj. Articulate and discuss the latest developments in the field of electrical engineering				
EE-POk. Apply techniques, skills, and modern engineering tools necessary for electrical engineering practice				
EE-POl. Demonstrate knowledge and understanding of engineering and management principles as a member and/or leader in a team to manage projects in multidisciplinary environments				

Course Description

The course covers nodal and mesh analysis; application of network theorems in circuit analysis; analysis of circuits with controlled sources and ideal op-amps; fundamentals of capacitors and inductors; analysis of dc-driven RL, RC, and RLC circuits; sinusoidal steady-state analysis of general RLC circuits.

DACUM Main Duties (DMD)

- EE-DMD1. Diagnose electrical problems using the electrical diagrams or blue print (as built electrical plans)
- EE-DMD2. Install, repair, and maintenance electrical power systems(building wiring, controls, electrical machines and transformers)
- EE-DMD3. Facilities Manager
- EE-DMD4. Power Plant Manager
- EE-DMD5. Electrical Researchers, Professor and Faculty

Course Outcomes (CO) and Relationship to Program Outcomes (PO)

Program Outcome (PO) / Level	Course Outcomes (CO)	Assessment Task (CO-AT)	DACUM Links				
			1	2	3	4	5



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<p>EE-POc. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability, in accordance with standards.</p>	<p>EE 121 – CO1: The students are able to use the different theories and techniques in forecasting energy demand (EE-POf.)</p> <p>EE 121 – CO2: The students will be able to use logical thinking in analyzing energy demand data through forecasting (EE-POf., EE-POg.)</p> <p>EE 121 – CO3: The students as a team will be able to discuss and explain the concepts used in energy demand forecasting (EE-POi., EE-POf.)</p>	<p>CO – AT1: Students conduct oral report thru online in energy demands</p> <p>Criteria – Topic content, presentation</p> <p>Total Points: 100 points</p> <p>CO – AT2: Students create project design computing samples of energy demand</p> <p>Criteria – creativity, functionality, delivery</p> <p>CO – AT3: Students calculate problem sets on electrical energy supply and demand.</p> <p>Criteria – 70% correct answers and solutions</p> <p>Total Points: 100 points</p>	/	/			/
<p><i>Enabling</i></p> <p>EE-POf. Recognize ethical and professional responsibilities in engineering practice</p>				/	/	/	/
<p><i>Demonstrate</i></p> <p>EE-POg. Communicate effectively with a range of audiences</p>							
<p><i>Enabling</i></p> <p>EE-POi. Recognize the need for additional knowledge and</p>							



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engage in lifelong learning <i>Enabling</i>								
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Course Outcomes (CO) and Relationship to Intended Learning Outcomes (ILO)

Course Outcomes (CO)	Intended Learning Outcomes (ILO)
EE 121 – CO1: The students are able to use the different theories and techniques in forecasting energy demand (EE-POf.) EE 121 – CO2: The students will be able to use logical thinking in analyzing energy demand data through forecasting (EE-POf., EE-POg.) EE 121 – CO3: The students as a team will be able to discuss and explain the concepts used in energy demand forecasting (EE-POi., EE-POf.)	

Detailed Course Content

Intended Learning Outcomes (ILO)	Topics	Time Frame	Teaching and Learning Activities (TLA)	Assessment Tasks (ILO-AT)	Target	Resources	Values Integration	Remarks
Express understanding of the Vision and Mission statements of SSCT, including its Goals and Objectives;	ORIENTATION ON THE COURSE VMGO	1 hr.	<i>Readings</i> on SSCT Student Handbook			SSCT Student Handbook Syllabus		



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<p>Analyze the syllabus by looking into the ILOs, Subject Matter, TLAs, Assessment Strategies, Values and References; and</p> <p>Design strategies that will help meet the requirements and obtain desired grades/marks for the course</p>	<p>Syllabus</p> <p>Grading System</p>		<p>Instructor will provide a course outline reflecting the VMGO, core values, IGA, program goals, course description, topics, course outcomes and requirements, grading system and course policies.</p>			<p>Criteria for the Grading System BOT Resolution No. 51, S. 2020</p>	<p>Core Value: <i>Service oriented</i></p> <p>Sub-Value: <i>Diligent pursuit of VMGO</i></p>	
<p>EE 121 – ILO1: Explain the importance of energy demand analysis in the power industry (EE 121 – CO3)</p> <p>EE 121 – ILO2: Connect the relationship of Forecasting and Planning (EE 121 – CO3)</p> <p>EE 121 – ILO3: Identify the importance of datas in forecasting (EE 121 – CO3)</p> <p>EE 121 – ILO4: Discuss and Explain different forecasting techniques (EE 121 – CO3)</p>	<p>1. THE NEED TO ANALYZE ENERGY DEMAND</p> <p>1.1 What does the field of forecasting encompass? 1.2 Forecasting relationship to planning 1.3 Examples of different types of forecasting problems 1.4 Importance of up-to-date data 1.5 Collecting data of different kinds 1.6 Knowing the causes the thing I'm forecasting to change 1.7 Forecasting without quantitative (numerical) data</p>	<p>10hrs</p>	<p>Discussion via Google Meet <i>Synchronous</i></p> <p>Learning Module 1 <i>Asynchronous</i></p>	<p>Oral discussion/participation thru online</p>	<p>70% of the students shall have a rating of at least 3.0</p>	<p>Modules, e-books, textbooks, and worksheets</p>	<p>Core Value: <i>Committed</i></p> <p>Sub-Value: <i>Determined in learning the energy demand analysis</i></p>	



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<p>EE 121 – ILO5: Apply basics of forecasting techniques (EE 121 – CO1)</p> <p>EE 121 – ILO6: Identify forecast time horizons and types (EE 121 – CO2)</p> <p>EE 121 – ILO7: Discuss and explain the steps of forecasting (EE 121 – CO3)</p>	<p>2. INTRODUCTION TO FORECASTING</p> <p>2.1 Forecasting Time Horizons 2.2 Types of Forecast 2.3 Steps in Forecasting</p>	<p>6hrs</p>	<p>Discussion via Google Meet <i>Synchronous</i></p> <p>Learning Module 2 <i>Asynchronous</i></p>	<p>Identification terms on forecasting</p>	<p>Powerpoint presentation on time series analysis and control</p>	<p>Modules, e-books, textbooks, and worksheets</p>	<p>Core Value: <i>Committed</i></p> <p>Sub-Value: <i>Determined in learning the forecasting types</i></p>	
<p>EE 121 – ILO8: Discuss and Explain time series forecasting (EE 121 – CO3)</p> <p>EE 121 – ILO9: Identify the different components of time series forecasting (EE 121 – CO2)</p> <p>EE 121 – ILO10: Identify common seasonality patterns of time series forecasting (EE 121 – CO2)</p> <p>EE 121 – ILO11: Use the different time series forecasting approach in forecasting Energy</p>	<p>3. TIME SERIES ANALYSIS AND CONTROL</p> <p>3.1 Components of Time Series 3.2 Common Seasonality Patterns 3.3 Naïve Approach 3.4 Moving Average 3.5 Exponential Smoothing 3.6 Holt – Winters Method</p>	<p>8 hrs</p>	<p>Discussion via Google Meet and video viewing <i>Synchronous</i></p> <p>Learning Module 3 <i>Asynchronous</i></p>	<p>Oral discussion /presentation on time series analysis and control</p>	<p>70% of the students shall have a rating of at least 3.0</p>	<p>Powerpoint presentation on time series analysis and control</p>	<p>Core Value: <i>Committed</i></p> <p>Sub-Value: <i>Determined in learning time series analysis and control</i></p>	



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Demand(EE 121 – CO1)								
MIDTERM EXAMINATION – 2.0 Hrs.								
<p>EE 121 – ILO12: Enumerate the different forecasting models and methods (EE 121 – CO2)</p> <p>EE 121 – ILO13: Discuss and explain the importance of common sense in forecasting (EE 121 – CO3)</p> <p>EE 121 – ILO14: Calculate forecasting errors (EE 121 – CO2)</p> <p>EE 121 – ILO15: Explain the importance of errors in forecasting (EE 121 – CO3)</p> <p>EE 121 – ILO16: Forecast energy demand data using the different time series forecasting techniques (EE 121 – CO1)</p>	<p>4.0 FORECASTING APPROACHES</p> <p>4.1 Forecasting Models</p> <p>4.2 Qualitative Methods</p> <p>4.3 Quantitative Methods</p> <p>4.4 Trend and Seasonality in Forecasting</p> <p>4.5 Common Sense and Forecasting</p> <p>4.6 Forecasting errors</p>	4hrs	<p>Discussion via Google Meet and video viewing <i>Synchronous</i></p> <p>Learning Module 5 <i>Asynchronous</i></p>	Q & A about the forecasting approaches	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books,	<p>Core Value: <i>Committed</i></p> <p>Sub-Value: <i>Perseverant in learning forecasting approaches</i></p>	
EE 121 – ILO16: Discuss and Explain the importance of regression method in	5.0 AUTO REGRESSION AND ASSOCIATIVE REGRESSION	10hrs	Discussions via Google Meet <i>Synchronous</i>	Oral report/presentation thru online on auto regression	70% of the students shall have a	Modules, e-books,	Core Value: <i>Transformational</i>	



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<p>energy demand analysis (EE 121 – CO3)</p> <p>EE 121 – ILO17: Forecast data using the regression methodologies (EE 121 – CO1)</p> <p>EE 121 – ILO18: Identify the different informations that can be obtained using the regression analysis (EE 121 – CO2)</p>	<p>5.1 Associative Models</p> <p>5.2 The Regression Model</p> <p>5.3 Mathematical Solution</p> <p>5.4 Information Obtained from Regression Analysis</p>		<p>Learning Module 6 <i>Asynchronous</i></p>	<p>and associative regression</p>	<p>rating of at least 3.0</p>		<p>Sub-Value: <i>Optimistic in analyzing auto regression and associative regression</i></p>	
<p>FINAL EXAMINATION – 3.0 Hrs.</p>								

References:

Textbooks

- Chaman, Jain L. Fundamentals of Demand Planning and Forecasting
- Padua, Roberto N., Forecasting Time Series
- Armstrong, J. Scott & Green, Kesten C., Demand Forecasting: Evidence-based Methods
- Chand, Smriti, Demand Forecasting: It's Meaning, Types, Techniques and Method Economics

Course Requirements:

- Problem Sets(CO-AT2)
- Group Project(CO-AT3)
- Quizzes and Assignments
- Midterm and Final exams

Course Evaluation:



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<u>Criteria</u>	<u>Lecture Grade</u>
➤ Quizzes and online outputs/interaction (ILO-AT)	20%
➤ Performance Tasks (CO-AT)	40%
➤ Major Exams (Midterm and Final)	40%
TOTAL	100%

Grade Computation: $\frac{\text{Midterm Grade} + \text{Final Grade}}{2} = \text{Average Grade}$

Grade Point	Description
1.0	Excellent
1.5 – 1.1	Very Good
2.0 – 1.6	Highly Satisfactory
2.5 – 2.1	Good
2.9 – 2.6	Satisfactory
3.0	Passing
5.0	Failed due to poor performance, absences, withdrawal without notice
DRP	Dropped with approved dropping slip
INC	Incomplete requirements but w/ passing class standing. INC is for non-graduating students only
NG	No Grade

Source: SSCT Student Handbook

Course Policies:

1. Attendance shall be checked in every class session in the Google Meet. This is to monitor the absences incurred by the students in terms of the allowable number of absences for a course as stipulated in the Student Handbook.
2. During online classes, video camera shall be turned on all the time and microphone shall be turned off. The microphone shall be unmuted only if the student's name is called to participate in class discussion.
3. Major examinations in multiple-choice type shall be done online. For problem solving type, detailed solutions shall be written legibly in separate sheets of paper and shall be converted to pdf form prior to submission.



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4. Cheating in major examinations which include attempts to defraud, deceive, or mislead the instructor in arriving at an honest assessment shall entail zero score.
5. Plagiarism which is a form of cheating that involves presenting the ideas or work of another as one's own work shall entail zero score.
6. Projects shall be submitted on or before the deadline. Students who submit unsatisfactory projects shall be given the chance to improve their works on the condition that they resubmit the revised outputs on the date set by the instructor. Non-submission of a project on the deadline shall entail zero score.
7. An INC grade shall be given to students who fail to submit the course requirements of at least 95% of the projects and quizzes or failure to take the major examinations.

Revision History:

Revision No.	Revised by	Date of Revision	Date of Implementation	Highlight of Revision
1	ENGR. CONRADO B. DELOSA JR	July 19, 2021	August 23, 2021	DACUM Workshop vis-à-vis CMO No. 101 S. 2017

Prepared by:

ENGR. CONRADO B. DELOSA JR
 INSTRUCTOR II

Date: AVG 9, 2021

Noted by:

ENGR. ROBERT R. BACARRO, MECE, MBA
 Dean, COLLEGE

Date: AVG 9, 2021

Checked and reviewed by:

ENGR. VICENTE Z. DELANTE, MEng'g
 Program Chair, BSEE

Date: AVG 9, 2021

Recommended by:

RONITA E. TALINGTING, PhD
 Campus Director

Date: AVG 10, 2021

Approved by:

EMMYLOU A. BORJA, EdD
 VP for Academic Affairs

Date: AVG 10, 2021



"For Nation's Greater Heights"

Republic of the Philippines
SURIGAO STATE COLLEGE OF TECHNOLOGY
Narciso St., Surigao City, Philippines, 8400
<http://www.ssct.edu.ph>

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STUDENTS WHO RECEIVED THE SYLLABUS

Syllabus in EE 121 EE Elective 3 – Energy Supply and Demand Analysis
First Semester, A.Y 2021 – 2022

NAME AND SIGNATURE

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ENGR. CONRADO B. DELOSA JR

(Signature of Instructor over printed name)



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COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY
City Campus
First Semester, Academic Year 2021-2022

Outcomes Based-Education (OBE) Syllabus in EE 311
Industrial Electronics
Course Credit: 4.0 units (108 hrs.)

Institutional Vision, Mission, and Goals

Vision:

An innovative and technologically-advanced State College in Caraga.

Mission:

To provide relevant,

- a. high quality and sustainable instruction,
- b. research, production and extension programs and
- c. services within a culture of credible and responsive institutional governance.

Goals:

- 1. Foster application of the discipline and provide its learner with industry-based training and education particularly in engineering, technology and fisheries.
- 2. Conduct and utilize studies for the development of new products, systems and services relevant to Philippine life and of the global village.
- 3. Promote transfer of technology and spread useful technical skills, thus empowering its learners and their activities.

SSCT Core Values

Service-Oriented Socially Responsive Committed Transformational

SSCT Quality Policy

Surigao State College of Technology provides quality instruction, research, extension programs and production services to satisfy its customers by responding to their needs and expectations and continually improving its quality management system.



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Institutional Graduate Attributes (IGA)

:

- Visionary Leader
- Effective Communicator
- Competent Technologist
- Self-Directed Lifelong Learner

Program Goals

The Electrical Engineering program aims to design and apply the generation, transmission, and distribution of electrical energy to produce competent engineers that exhibit positive work ethics and flexibility in work conditions for the development of Caraga.

Program Educational Objectives (PEO) and Relationship to Institutional Mission

Program Educational Objectives (PEO)	Mission		
	a	b	c
EE-PEO1. Demonstrate professionalism in electrical engineering and apply professional ethics thru communication and collaboration.	/	/	/
EE-PEO2. Use appropriate techniques, resources, and modern tools necessary for analysis, design, and modeling of complex electrical systems	/	/	/
EE-PEO3. Plan, lead, and implement designated tasks, interact with other engineering professionals, and take leadership roles in electrical engineering organization.	/	/	/
EE-PEO4. Engage in lifelong learning able to discover new opportunities for continuing personal and professional development in electrical engineering	/	/	/

Program Outcomes (PO) and Relationship to Program Educational Objectives (PEO)

Program Outcomes (PO)	Program Educational Objectives (PEO)			
	1	2	3	4
EE-POa. Apply knowledge of mathematics and sciences to solve complex engineering problems				
EE-POb. Develop and conduct appropriate experimentation, analyze and interpret data	/	/	/	/
EE-POc. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical,				



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health and safety, manufacturability, and sustainability, in accordance with standards				
EE-POd. Function effectively on multi-disciplinary and multi-cultural teams that establish goals, plan tasks, and meet deadlines				
EE-POe. Identify, formulate, and solve complex problems in electrical engineering				
EE-POf. Recognize ethical and professional responsibilities in engineering practice				
EE-POg. Communicate effectively with a range of audiences	/	/	/	/
EE-POh. Understand the impact of engineering solutions in a global, economic, environmental, and societal context				
EE-POi. Recognize the need for additional knowledge and engage in lifelong learning				
EE-POj. Articulate and discuss the latest developments in the field of electrical engineering				
EE-POk. Apply techniques, skills, and modern engineering tools necessary for electrical engineering practice				
EE-POl. Demonstrate knowledge and understanding of engineering and management principles as a member and/or leader in a team to manage projects in multidisciplinary environments				

Course Description

The course covers nodal and mesh analysis; application of network theorems in circuit analysis; analysis of circuits with controlled sources and ideal op-amps; fundamentals of capacitors and inductors; analysis of dc-driven RL, RC, and RLC circuits; sinusoidal steady-state analysis of general RLC circuits.

DACUM Main Duties (DMD)

- EE-DMD1. Diagnose electrical problems using the electrical diagrams or blue print (as built electrical plans)
- EE-DMD2. Install, repair, and maintenance electrical power systems (building wiring, controls, electrical machines and transformers)
- EE-DMD3. Facilities Manager
- EE-DMD4. Power Plant Manager
- EE-DMD5. Electrical Researchers, Professor and Faculty



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Course Outcomes (CO) and Relationship to Program Outcomes (PO)

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Program Outcome (PO) / Level	Course Outcomes (CO)	Assessment Task (CO-AT)	DACUM Links				
			1	2	3	4	5
EE-POb. Develop and conduct appropriate experimentation, analyze and interpret data <i>Enabling</i>	EE 311- CO1: Identify various electronic power controls (EE-POb, EE-POe)	CO-AT1: Students conduct electronic experiments. These experiments serve as a group activity where they will analyze and interpret data. Criteria – Functionality and lab report Total Points: 100 points	/	/			/
EE-POe. Identify, formulate, and solve complex problems in electrical engineering <i>Enabling</i>	EE 311- CO2: Describe how they are designed and their applications (EE-POb, EE-POg)	CO-AT2: Students calculate sets of electronic problems using the electronic circuit theory concepts. Criteria – 70% correct answers and solutions Total Points: 100 points		/	/		
EE-POg. Communicate effectively with a range of audiences <i>Introductory</i>		CO-AT3: Students create a group project and present them in the class. Criteria – creativity, functionality, delivery Total Points: 100 points	/	/	/	/	/

Course Outcomes (CO) and Relationship to Intended Learning Outcomes (ILO)

Course Outcomes (CO)	Intended Learning Outcomes (ILO)
EE 311- CO1: Identify various electronic power controls (EE-POb, EE-POe)	EE 311 – ILO1: Identify the different types of filter circuits used in power supply. (EE 311-CO1)
EE 311- CO2: Describe how they are designed	



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and their applications (EE-POb, EE-POg)	<p>EE 311 – ILO2: Determine the functions, operations and applications of a filtered power supply. (EE 311-CO1)</p> <p>EE 311 – ILO3: Develop skills in analyzing the current path in a power supply (EE 311-CO2)</p> <p>EE 311 – ILO4: Identify the different types of voltage multipliers. (EE 311-CO1)</p> <p>EE 311 – ILO5: Describe how each type operates and its characteristics (EE 311-CO2)</p> <p>EE 311 – ILO6: Identify different types of voltage regulators and determine its operations and applications (EE 311-CO1)</p> <p>EE 311 – ILO7: Identify the different types of polyphase rectifiers. (EE 311-CO1)</p> <p>EE 311 – ILO8: Explain and analyze the operation of a half-wave polyphase rectifier and full-wave polyphase rectifiers (EE 311-CO2)</p> <p>EE 311 – ILO9: Describe the characteristics and operations of a SCR, UJT, PUT, TRIAC's, DIAC's and other thyristors (EE 311-CO2)</p> <p>EE 311 – ILO10: Identify the different types of optoelectronics devices and Sensors (EE 311-CO1)</p> <p>EE 311 – ILO11: Identify the different types of transducers and its characteristics (EE 311-CO1)</p> <p>EE 311 – ILO12: Determine the types of input/output transducers and its applications. (EE 311-CO2)</p>
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	<p>EE 311 – ILO13: Understand Pneumatics and Electro-pneumatics as the foundation of PLC and its importance in industry (EE 311-CO1)</p> <p>EE 311 – ILO14: Acquire skills in PLC ladder diagramming (EE 311-CO2)</p> <p>EE 311 – ILO15: Understand the concepts of Robot and its usefulness in automation (EE 311-CO1)</p> <p>EE 311 – ILO16: Identify the different mechanical configuration of industrial robots (EE 311-CO1)</p> <p>EE 311 – ILO17: Describe the operation of different types of industrial robots.(EE 311-CO2)</p>
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Detailed Course Content

Intended Learning Outcomes (ILO)	Topics	Time Frame	Teaching and Learning Activities (TLA)	Assessment Tasks (ILO-AT)	Target	Resources	Values Integration	Remarks
Express understanding of the Vision and Mission statements of SSCT, including its Goals and Objectives; Analyze the syllabus by looking into the ILOs,	ORIENTATION ON THE COURSE VMGO	1 hr.	<i>Readings</i> on SSCT Student Handbook Instructor will provide a course outline reflecting			SSCT Student Handbook Syllabus		



Subject Matter, TLAs, Assessment Strategies, Values and References; and Design strategies that will help meet the requirements and obtain desired grades/marks for the course	Syllabus Grading System		the VMGO, core values, IGA, program goals, course description, topics, course outcomes and requirements, grading system and course policies.			Criteria for the Grading System BOT Resolution No. 51, S. 2020	Core Value: <i>Service oriented</i> Sub-Value: <i>Diligent pursuit of VMGO</i>	
EE 311 – ILO1: Identify the different types of filter circuits used in power supply. (EE 311-CO1) EE 311 – ILO2: Determine the functions, operations and applications of a filtered power supply. (EE 311-CO1) EE 311 – ILO3: Develop skills in analyzing the current path in a power supply (EE 311-CO2)	1. FILTERED POWER SUPPLY	7hrs	Discussion via Google Meet <i>Synchronous</i> Learning Module 1 <i>Asynchronous</i>	Identification quiz on the types of filter circuits	70% of the students shall have a rating of at least 3.0	Modules, e-books, textbooks, and worksheets	Core Value: <i>Committed</i> Sub-Value: <i>Determined in learning the different types of filter circuits</i>	
EE 311 – ILO4: Identify the different types of voltage multipliers. (EE 311-CO1) EE 311 – ILO5: Describe how each type operates and its	2. VOLTAGE MULTIPLIERS	4hrs	Discussion via Google Meet and video viewing <i>Synchronous</i> Learning Module 2 <i>Asynchronous</i>	Oral report/presentation on voltage multipliers	70% of the students shall have a rating of at least 3.0	PowerPoint presentation on voltage multipliers and its characteristics	Core Value: <i>Committed</i> Sub-Value: <i>Determined in learning voltage multipliers</i>	



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characteristics (EE 311-CO2)								
EE 311 – ILO6: Identify different types of voltage regulators and determine its operations and applications (EE 311-CO1)	3. VOLTAGE REGULATORS	4hrs	Discussion via Google Meet and video viewing <i>Synchronous</i> Learning Module 3 <i>Asynchronous</i>	Oral report/presentation thru online in voltage regulators	70% of the students shall have a rating of at least 3.0	PowerPoint presentation in voltage regulators and its operations	Core Value: <i>Committed</i> Sub-Value: <i>Dedicated in voltage regulators</i>	
EE 311 – ILO7: Identify the different types of polyphase rectifiers. (EE 311-CO1) EE 311 – ILO8: Explain and analyze the operation of a half-wave polyphase rectifier and full-wave polyphase rectifiers (EE 311-CO2)	4. POLYPHASE RECTIFIERS	4hrs	Discussion via Google Meet and video viewing <i>Synchronous</i> Learning Module 4 <i>Asynchronous</i>	Q & A in different types of rectifier and its operations	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books,	Core Value: <i>Transformational</i> Sub-Value: <i>Adaptive in learning and solving rectifiers</i>	
EE 311 – ILO9: Describe the characteristics and operations of a SCR, UJT, PUT, TRIAC's, DIAC's and other thyristors (EE 311-CO2)	5. THYRISTORS AND OTHER CONTROL DEVICES	4hrs	Discussion via Google Meet and video viewing <i>Synchronous</i> Learning Module 4 <i>Asynchronous</i>	Oral report/presentation thru online on thyristors	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books,	Core Value: <i>Transformational</i> Sub-Value: <i>Adaptive in learning types of thyristors</i>	
MIDTERM EXAMINATION – 2.0 Hrs.								
EE 311 – ILO10: Identify the different types of optoelectronics	6. OPTOELECTRONIC DEVICES AND SENSORS	6hrs	Discussion via Google Meet and video viewing <i>Synchronous</i>	Oral report/presentation thru online on optoelectronic	70% of the students shall have a	Videos online, modules, e-books,	Core Value: <i>Committed</i> Sub-Value:	



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devices and Sensors (EE 311-CO1)			Learning Module 5 <i>Asynchronous</i>	devices and sensors	rating of at least 3.0		<i>Perseverant in learning optoelectronic devices and sensors</i>	
EE 311 – ILO11: Identify the different types of transducers and its characteristics (EE 311-CO1) EE 311 – ILO12: Determine the types of input/output transducers and its applications. (EE 311-CO2)	7. TRANSDUCERS	6hrs	Discussion via Google Meet <i>Synchronous</i> Learning Module 7 <i>Asynchronous</i>	Oral report/presentation thru online on transducers	70% of the students shall have a rating of at least 3.0	Modules, e-books	Core Value: <i>Committed</i> Sub-Value: <i>Perseverant in learning transducers</i>	
EE 311 – ILO13: Understand Pneumatics and Electro-pneumatics as the foundation of PLC and its importance in industry (EE 311-CO1) EE 311 – ILO14: Acquire skills in PLC ladder diagramming (EE 311-CO2)	8. INTERFACING TECHNIQUE 8.1 Pneumatics 8.2 Electro-Pneumatics	6hrs	Discussion via Google Meet <i>Synchronous</i> Learning Module 7 <i>Asynchronous</i>	Laboratory experiment thru simulation of PLC	70% of the students shall have a rating of at least 3.0	Modules, e-books, Manuals	Core Value: <i>Committed</i> Sub-Value: <i>Perseverant in programming plc ladder circuit</i>	
EE 311 – ILO15: Understand the concepts of Robot and its usefulness in automation (EE 311-CO1)	9. INTRODUCTION TO ROBOTICS	6hrs	Discussion via Google Meet <i>Synchronous</i> Learning Module 7 <i>Asynchronous</i>	Oral report/presentation thru online on Robotics	70% of the students shall have a rating of at least 3.0	Modules, e-books, Manuals	Core Value: <i>Committed</i> Sub-Value: <i>Determined in learning robotics</i>	



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EE 311 – ILO16: Identify the different mechanical configuration of industrial robots (EE 311-CO1)								
EE 311 – ILO17: Describe the operation of different types of industrial robots.(EE 311-CO2)								
FINAL EXAMINATION – 3.0 Hrs.								

References:

Textbooks

- V Floyd, Thomas L. (2012) Electronic Devices Electron Flow Version
- Boylestad, R. and Nashelsky, L. (201), Electronic Devices and Circuit Theory

Course Requirements:

- Laboratory Reports (CO-AT1)
- Problem Sets (CO-AT2)
- Group Project (CO-AT3)
- Quizzes and Assignments
- Midterm and Final exams

Course Evaluation:

<u>Criteria</u>	<u>Lecture Grade</u>
➤ Quizzes and online outputs/interaction (ILO-AT)	20%
➤ Performance Tasks (CO-AT)	40%
➤ Major Exams (Midterm and Final)	40%
TOTAL	100%



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Grade Computation: $\frac{\text{Midterm Grade} + \text{Final Grade}}{2} = \text{Average Grade}$

Grade Point	Description
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Revision History:

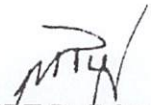
Revision No.	Revised by	Date of Revision	Date of Implementation	Highlight of Revision
1	ENGR. CONRADO B. DELOSA JR	July 19, 2021	August 23, 2021	DACUM Workshop vis-à-vis CMO No. 101 S. 2017

Prepared by:


ENGR. CONRADO B. DELOSA JR
 INSTRUCTOR II

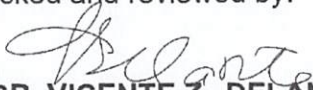
Date: AUG 9, 2021

Noted by:


ENGR. ROBERT R. BACARRO, MECE, MBA
 Dean, COLLEGE

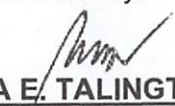
Date: AUG 9, 2021

Checked and reviewed by:


ENGR. VICENTE Z. DELANTE, MEng'g
 Program Chair, BSEE

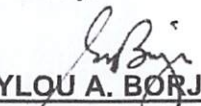
Date: AUG 9, 2021

Recommended by:


RONITA E. TALINGTING, PhD
 Campus Director

Date: AUG 10, 2021

Approved by:


EMMYLOU A. BORJA, EdD
 VP for Academic Affairs

Date: AUG 10, 2021



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STUDENTS WHO RECEIVED THE SYLLABUS
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First Semester, A.Y 2021 – 2022

NAME AND SIGNATURE

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ENGR. CONRADO B. DELOSA JR
(Signature of Instructor over printed name)