SAINT LOUIS UNIVERSITY

BAGUIO CITY, PHILIPPINES

MECHATRONICS ENGINEERING
PROGRAM CATALOG

SCHOOL OF
ENGINEERING
AND ARCHITECTURE

SLU VISION-MISSION

We envision Saint Louis University as an excellent missionary and transformative educational institution
zealous in developing locally responsive, globally competitive, and empowered human resources
who are creative, competent, socially involved, and imbued with Christian spirit.

SCHOOL VISION-MISSION

The School of Engineering and Architecture (SEA) envisions herself as an exemplary educational institution for engineering and architecture
dedicated to elevating instruction, research, and extension to a higher level of competence and creativity
committed to shaping the socio-technical environment founded on Christian values.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

Three to five years after graduation, alumni of the Architecture and Engineering Programs are expected to:

1. demonstrate technical competence in the analysis of problems and design of systems, keeping in mind the technical, professional, societal, environmental, economic, and ethical dimensions of any solution;
2. apply their talents and full potentials in the practice of their profession guided by the Christian tenets of
3. honesty, service, dedication and a deep sense of moral responsibility;
4. pursue advanced education, research and development, and other creative efforts in science and technology; and;
5. participate actively to address social, technical and business challenges vital to national progress and development.

PROGRAM LEARNING OUTCOMES (PLO)

Graduates of the BS in Mechatronics Engineering program are expected to:

1. apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems;
2. conduct investigations of complex engineering problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions;
3. design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations;
4. function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings;
5. compose substantiated conclusions after the analysis of complex engineering problems using first principles of mathematics, natural sciences, and engineering sciences to identify, formulate, and research relevant literature;
6. apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice;
7. communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions;
8. evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental context;
9. demonstrate the ability to engage in independent and life-long learning in the broadest context of technological change;
10. apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex engineering problems;
11. create appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering problems with an understanding of the limitations;
12. apply knowledge and understanding of engineering management principles and economic decision-making to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments; and
13. practice Christian values in their personal and professional endeavors as Louisians in the service of the CICM mission.
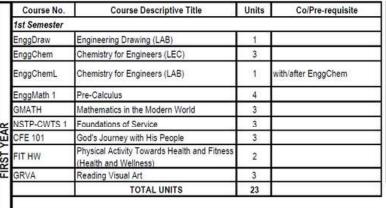
CURRICULUM

FIRST YEAR

1st Semester

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
EnggDraw	Engineering Drawing (LAB)	1	
EnggChem	Chemistry for Engineers (LEC)	3	
EnggChemL	Chemistry for Engineers (LAB)	1	with/after EnggChem
EnggMath 1	Pre-Calculus	4	
GMATH	Mathematics in the Modern World	3	
NSTP-CWTS 1	Foundations of Service	3	
CFE 101	God's Journey with His People	3	
FIT HW	Physical Activity Towards Health and Fitness (Health and Wellness)	2	
GRVA	Reading Visual Art	3	
	TOTAL UNITS	**23**	

2nd Semester

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
EnggCAD	Computer Aided Drafting (LAB)	1	EnggDraw
EnggMath 2	Differential Calculus	4	EnggMath 1
NSTP-CWTS 2	Social Awareness and Empowerment for Service	3	NSTP-CWTS 1
GART	Art Appreciation	3	
GETHICS	Ethics	3	
CFE 102	Christian Morality in Our Times	3	
FIT CS	Physical Activity Towards Health and Fitness (	2	
GIT	Living in the IT Era	3	
	TOTAL UNITS	**22**	

Short Term

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
EnggMath 4	Integral Calculus	4	EnggMath 2
EnggPhys	Physics for Engineers (LEC)	3	EnggMath 2
EnggPhysL	Physics for Engineers (LAB)	1	with/ after EnggPhys
	TOTAL UNITS	**8**	

SECOND YEAR

1st Semester

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
MEC 2111L	Workshop Theory and Practice (LAB)	2	
MEC 2121	Statics of Rigid Bodies for MEC	3	EnggPhys
MEC 2131	Electronics 1: Electronic Devices and Circuits	3	EnggPhys
MEC 2131L	Electronics 1: Electronic Devices and Circuits	1	with/after MEC 2131
MEC 2141	Basic Electrical Engineering (LEC)	2	EnggPhys
MEC 2141L	Basic Electrical Engineering (LAB)	1	with/after MEC 2141
EnggMath 5	Differential Equations	3	EnggMath4
GHIST	Readings in Philippine History	3	
CFE 103	Catholic Foundation of Mission	3	
FIT AQ	Physical Activity Towards Health and Fitness (Aquatics)	2	
GSELF	Understanding the Self	3	
	TOTAL UNITS	**26**	

2nd Semester

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
TechWrite	Technical Writing	3	
GPCOM	Purposive Communication	3	
MEC 2211L	Machine Shop Theory (LAB)	2	MEC 2111L
MEC 2221	Dynamics of Rigid Bodies for MEC	2	MEC 2121
MEC 2231	Mechanics of Deformable Bodies	5	MEC 2121
MEC 2241	Thermodynamics 1	3	EnggMath 4
MEC 2251	Electrical Machinery: AC/DC (LEC)	2	MEC 2131
MEC 2251L	Electrical Machinery: AC/DC (LAB)	1	with/after MEC 2251L
ComProg	Computer Fundamentals and Programming (LAB)	2	
CFE 104	CICM Missionary Identity	3	CFE 103
FIT OA	Physical Activity Towards Health and Fitness (Outdoor and Adventure Activities)	2	
	TOTAL UNITS	**28**	

Short Term

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
GENTREP	The Entrepreneurial Mind	3	
EnggMath 3	Engineering Data Analysis	3	EnggMath2
MEC 2281	Advanced Mathematics with Numerical Methods	3	EnggMath 5
	TOTAL UNITS	**9**	

CURRICULUM

THIRD YEAR

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
1st Semester			
MEC 3101	Sensor Engineering (LEC)	2	MEC 2131
MEC 3101L	Sensor Engineering (LAB)	1	with/afterMEC 3101
MEC 3111	Digital principles and logic design (LEC)	3	MEC 2131
MEC 3111L	Digital principles and logic design (LAB)	1	with/afterMEC 3111
MEC 3121	Kinematics of Machines (LEC)	3	MEC 2221
MEC 3121L	Kinematics of Machines (LAB)	1	with/afterMEC 3121
MEC 3141	Instrumentation and Control Engineering	3	MEC 2131
GCWORLD	The Contemporary World	3	
GRIZAL	The Life and Works of Rizal	3	
Techno 101	Technopreneurship	2	GENTREP
Techno 101L	Technopreneurship (LAB)	1	with/after Techno 101
CFE 105A	CICM in Action: Justice, Peace, and Integrity of Creation; Indigenous Peoples; and Interreligious Dialogue	1.5	CFE 103, CFE 104
	TOTAL UNITS	24.5	

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
2nd Semester			
MEC 3201	Material Science & Engineering for MEC (LEC)	2	MEC 2231
MEC 3201L	Material Science & Engineering for ME (LAB)	1	with/after MEC 3201
MEC 3211	Electromechanical System	2	MEC 3101
MEC 3211L	Electromechanical System Laboratory	1	with/after MEC 3211
MEC 3221	Machine Design (LEC)	2	MEC 2231
MEC 3221L	Machine Design (LAB)	1	with/afterMEC 3221
MEC 3231	Methods of Research for MEC	3	TechWrite
MEC 3241	Industrial and Power Electronics (LEC)	3	MEC 3141
MEC 3241L	Industrial and Power Electronics (LAB)	1	with/after MEC 3241
MEC 3251L	Computer Aided Design for ME/MeCe (LAB)	2	ComProg
MEC 3261	Engineering Economics	3	Techno 101
CFE 105B	CICM in Action: Environmental Planning and Management; and Disaster Risk Reduction Management	1.5	CFE 105 A
GSTS	Science, Technology, and Society	3	
	TOTAL UNITS	25.5	

Course No.	Course Descriptive Title	Units	Co/Pre-requisite
Short Term			
MEC 3261	On-the-Job Training for MECE (240 Hours)	3	MEC 3211
	TOTAL UNITS	3	

CURRICULUM

	Course No.	Course Descriptive Title	Units	Co/Pre-requisite	Course No.	Course Descriptive Title	Units	Co/Pre-requisite
	1st Semester				**2nd Semester**			
FOURTH YEAR	MEC 4111	Advanced Computer System and Information Technology (LEC)	3	ComProg	MEC 4211	Mechatronics System Design Lecture (LEC)	3	MEC 4111
	MEC 4111L	Advanced Computer System and Information Technology (LAB)	1	with/after MEC 4111L	MEC 4211L	Mechatronics System Design Laboratory (LAB)	1	with/after MEC 4211L
	MEC 4121	Advanced PLC and System Integration (HMI & SCADA) (LEC)	3	MEC 3211	MEC 4221	Robotics Lecture (LEC)	3	MEC 4131
	MEC 4121L	Advanced PLC and System Integration (HMI & SCADA) (LAB)	1	with/after MEC 4121L	MEC 4221L	Robotics Laboratory (LAB)	1	with/after MEC 4221L
	MEC 4131	Embedded Systems (LEC)	3	MEC 3241	MEC 4231	Automation System Design (LEC)	3	MEC 4121
	MEC 4131L	Embedded Systems(LAB)	1	with/after MEC 4131L	MEC 4231L	Automation System Design (LAB)	1	with/after MEC 4231L
	MEC 4141	Design/Capstone Project 1	1	MEC 3231	MEC 4241L	Design/Capstone Project 2	1	MEC 4151
	MEC 4151	Basic Occupational Safety & Health for ME	3	MEC 2231L	MEC 4251	Codes, Standards and Professional Ethics	2	MEC 4151
	MEC 4161	Rapid Prototyping	2	with/after MEC 4141	MEC 4261	Digital Processing and Machine Vision	2	with/after MEC 4141
	MEC 4161L	Rapid Prototyping Laboratory	1	with/after MEC 4161	MEC 4261L	Digital Processing and Machine Vision Laboratory	1	with/after MEC 4261
	MEC 4171	Engineering Management	3	MEC 3261	MEC 4271	Industry Visit and Seminars	2	
	CFE 106A	Embracing the CICM Mission	1.5	CFE 105B	CFE 106B	Embracing the CICM Mission	1.5	CFE 106 A
		TOTAL UNITS	**23.5**			**TOTAL UNITS**	**21.5**	
	TOTAL PROGRAM UNITS		**214**					

NOTE 1. The maximum load a graduating student allowed to enroll is regular load plus 6 units (Regular Semester); regular load plus 3 units (Short term)

2. The year level is based on the 70% of the subjects enrolled in the current term

3. Regular students are those with no advanced and back subjects based on the checklist

4. Required units:214

ADMISSION POLICIES

Saint Louis University welcomes local and foreign students alike, subject to University admission Policies, requirements, and academic standards and pertinent laws of the Republic of the Philippines

Undergraduate Freshman Students
- All undergraduate freshman applicants must pass the SLU College Entrance Examination (SLU-CEE) and must qualify within the slots duly determined for their chosen course. The regular SLU-CEE is conducted during weekends from the middle of October up to the middle of December. Admission for the first semester starts at the middle of April.

Transfer Students
- SLU admits transferees in all courses except Bachelor in Medical Laboratory Science subject to their compliance with pertinent requirements and guidelines. They must undergo a Qualifying Examination (QE) and if qualified, will take the Personality Test and Interview. Foreign students applying as transferee are subject to the English Proficiency Test (EPT) rule.

Graduate Program Students
- The applicant must have finished the prerequisite degree/s prior to acceptance to the Graduate Program;
- For a Master's degree, the applicant must have a Baccalaureate degree from an institution of recognized standing
- For a Doctorate degree, the applicant must have a Master's degree in related fields from an institution of recognized standing.

Foreign Students
- Foreign students should apply not later than 6 months before the start of the academic term. Moreover, they should be in Baguio City at least 4 weeks before the start of classes of the academic term for them to take the EPT as well as SLU-CEE / QE / GPEE, and Personality Test.
- Foreign students applying for the first time either in the undergraduate or graduate program should initially possess satisfactory proficiency in English and have passed the EPT as well as the pertinent entrance examination and Personality Test. Before enrolling, they undergo Preadmission Processing at the Student Affairs Office.
- Foreign students must secure a valid Student Visa. There are two options in securing a Student Visa. For related information, consult Foreign Student section of the Registrar's Office.

SCHEDULE OF FEES

FIRST YEAR TUITION FEE AS OF AY 2022 - 2023		
COURSE	PARTIAL	FULL
BS MECHATRONICS Engg	P 10,000.00	P 26,451..00
FEES LISTED PER SEMESTER AND ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE		

JOB OPPORTUNITIES AND FUTURE PROSPECTS

- Robotics Engineer/Technician
- Automation Engineer
- Control System Designer/ Troubleshooting Engineer
- Electronics Design Engineer
- Mechanical Design Engineer
- Data scientist/big data analyst
- Instrumentation engineer
- Software engineer
- Gaming Engineer
- Academe Professor
- Electro-mechanical engineer
- Cable and Networking Technician

CONTACT INFORMATION

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