Nile University

Master of Science (M.Sc.)
Program in
Microelectronics System Design

Program specification

Documents

Master of Science (M.Sc.) in Microelectronics System Design Program

Program Vision & Description

Microelectronics is the primary medium for implementing communication, computer and control systems. They are at the core of the latest innovations in the automotive industry and aerospace engineering. Laptops, I pods, mobile phones, and the Internet are part of our everyday experience, thanks to modern electronics.

Nile University's Microelectronics System Design program focuses on state-of-the-art Integrated Circuit (IC) design and design methodologies. A special emphasis is placed on design flow, system-level issues, and Electronic Design Automation (EDA) tools, including modeling, synthesis, and simulation at various levels of abstraction. The program of study should naturally lead into hot areas of research as well as practical development work. It includes an offering of core courses, specialized electives, and several business and management courses. At the end of the 2-year program, students will have gone through the whole design cycle from concept all the way down to verification, or tape-out. They will acquire hands-on experience in the design of microelectronics circuits and systems, coupled with a foundation in entrepreneurship and management that would enable them to make an immediate impact in the marketplace.

Who Should Attend

The program is specifically designed to provide a program of study for graduates wishing to pursue a career in the area of Microelectronics Design, or as a route to Continual Professional Development if they are already working in the Microelectronics industry. Positions graduates are expected to hold include: IC Designer, Senior IC Designer, Design Team Leader, and Design Manager, in the areas of Digital, Analog, RF, and Mixed-Signal Circuits and Systems.

Program Outcomes

Graduates will have had extensive hands-on design experience, and will be prepared to make an immediate contribution to microelectronic designs in companies specializing in the design of integrated circuits and systems, as well as companies developing EDA tools. Additionally, graduates will be able to make business decisions which will complement their technical expertise, and empower them to be agents of growth in the Microelectronics design industry in Egypt.

Curriculum

The M. Sc program is composed of 36 credit hours including 9 cr hrs of thesis. The program of study consists of a core, specialized electives for depth, optional courses for breadth, business and management courses and a thesis. The core courses will provide the students with the basics of design flow for different implementations (ASICs, FPGA, and full custom) including tradeoffs for performance, design time, economics, etc. Specialized electives cover a range of topics including Analog Design, RF Microelectronics, Computer-Aided Design, and Modeling, Analysis, & Optimization of High Performance ICs. The program is further enriched through a choice of courses that broadens the students' horizons such as Software Engineering, Systems Engineering, Digital Signal Processing, and Computer & Network Architecture. Business and Management courses complement the course offering for the M.Sc. options. Detailed curriculum is shown below:

I. Core MSD Courses

All students must complete the following three required core courses.

Courses	Cr. Hr	Pre-requisites(s)
MSD 610 Full Custom IC Design	3	
MSD 620 ASIC and FPGA Design	3	
MSD 690 VLSI System Design	3	MSD 610 or MSD 620

II. Specialized MSD Courses (Depth)

M.Sc. students must complete three or four specialized courses to satisfy the depth requirement.

Courses	Cr. Hr
MSD 601 Integrated Circuit Engineering	3
MSD 602 Sensors, Actuators, and MEMS	3
MSD 611 Analysis and Optimization of High-Performance Integrated Circuits	3
MSD 630 Analog Integrated Circuit Design	3
MSD 631 RF Microelectronics	3
MSD 640 Computer-Aided IC Design	3
MSD 680 Selected Topics in Microelectronics System Design	3
MSD 689 Directed Study	3

III. Elective Courses (Breadth)

Elective courses are chosen from other graduate programs in the CIT area (General CIT, Wireless Technologies, Information Security, Software Engineering, etc.) The choice of electives must be approved by the program director. M.Sc. students must complete one or two elective courses to satisfy the breadth requirement.

IV. Management of Technology and Business Courses

M.Sc. students must complete 3 credits in Management of Technology and/or Business.

V. Thesis

MSMSD students must successfully complete and defend a master thesis.

Course Descriptions

CORE MSD COURSES

MSD 610 Full Custom IC Design, 3 cr hr

This course focuses on the design of digital IC blocks in CMOS technology from the bottom up. Design rules and layout. Static, dynamic, pass gates, and other logic families. Sequential circuits, arithmetic circuits, data path structures, and memories. Interconnect and I/O design. Clock and power distribution networks, Testing and reliability.

MSD 620 ASIC and FPGA Design, 3 cr hr

Overview of Computer Aided Design tool flow for ASIC and FPGA Design. Synthesis from hardware description languages and creation of finite state machines. Differences between FPGA and ASIC design flows. Exploration of concepts in several projects. .

MSD 690 VLSI System Design, 3 cr hr

Prerequisite: MSD 610 or MSD 620 Design of a cutting-edge VLSI chip. Teams of 3 to 5 students undertake a large circuit design problem, going from specification to VLSI implementation while optimizing for speed, area, and/or power. Group collaboration and engineering design.

SPECIALIZED MSD COURSES (DEPTH)

MSD 601 Integrated Circuit Engineering, 3 cr hr

IC Technology. Basic processing technology and layout fundamentals. Design and layout of MOS and BJT transistors, capacitors, and resistors. Memory technology: static and dynamic RAMs, ROMs, CAMs. Models for computer aided analysis. Economics of large scale integration.

MSD 602 Sensors, Actuators, and MEMS, 3 cr hr

This course introduces fabrication and design fundamentals for on-chip sensor and actuator systems having micron-scale dimensions. Basic principles covered include microstructure fabrication, mechanics of silicon and thin-film materials, electrostatic force, capacitive motion detection, fluidic damping, piezoelectricity, piezoresistivity, and thermal micromechanics. Applications covered include pressure sensors, micro mirror displays, accelerometers, and gas micro sensors.

MSD 611 Analysis and Optimization of High-Performance Integrated Circuits, 3 cr hr

Prerequisite: MSD 610This course discusses issues that arise in the design and analysis of VLSI circuits at high speed. Technology scaling trends in CMOS. Power consumption and low power design. Interconnect design and delay modeling. Inductance effects. Static Timing Analysis. Noise. Thermal effects.

MSD 630 Analog Integrated Circuit Design, 3 cr hr

This course will familiarize students with advanced analog integrated circuit (IC) design issues highlighting major analog building blocks and circuit techniques. Specific topics include MOSFET device modeling, noise analysis, op-amp design and compensation, and reference circuits. Special attention is given to analog-to-digital converters, and digital-to-analog converters.

MSD 631 RF Microelectronics, 3 cr hr

Introduction to the design of radio frequency integrated circuits (RFICs). Transceiver architectures,

transistor models, passive component models, MOS and bipolar low-noise amplifiers, mixers, voltage-controlled oscillators, phase-locked loops, baseband circuits.

MSD 640 Computer-Aided IC Design, 3 cr hr

This course opens up the important CAD tools that perform the many steps of the transformation from high-level descriptions to masks. Mathematical models, algorithms, formulations and data structures. Algorithms for floor planning, circuit partitioning, placement and routing. Circuit simulation. Digital and mixed-mode simulation. Optimization. Statistical IC design.

MSD 680 Selected Topics in Microelectronics System Design, 3 cr hr

This course is tailored to introduce students to the latest advances in various fields of Microelectronics System Design, and/or to focus on a specific area of particular interest to the discipline. Contents of the course may vary from one semester to another. A student may repeat the course for credit, provided that the selection of topics is different. Repeating the course for credit requires the approval of the program director.

MSD 689 Directed Study, 3 cr hr

In this course, students follow an in-depth directed study in a given topic or field of their choice under the close supervision of a faculty member. If the topic or field of study is in an area of specialization in Microelectronics, it may count towards the Specialized MSD (or Depth) requirement. Otherwise, it may count towards the Elective (or Breadth) requirement. A student may repeat the course for credit, provided that the topic or field of choice is different. Repeating the course for credit requires the approval of the program director.

THESIS

MSD 700 M.Sc. Thesis, 9 cr hr

Supervised thesis work in fundamental research or applied problems.

ACADEMIC REGULATIONS FOR GRADUATE STUDIES

1. CREDIT HOUR SYSTEM

Coursework, grading and graduation requirements are all functions of the credit hour. In general, a credit hour represents a one-hour class period and three additional hours of individual study each week for one semester.

2. CLASS ATTENDANCE

Class sessions and group meetings are considered not only academic but also professional activities. As such, students are expected to attend group meetings and classes, regularly and punctually in order to ensure active and continued engagement in discussions, and a rich learning experience.

If a class must be missed, for whatever reason, the student should notify the instructor and the program director, giving as much advance notice as possible. In all cases, it will be the student's responsibility to make up for work missed. Under no circumstances will job interviews, fieldwork for any course, or personal circumstances that are not absolutely exceptional, be accepted as sufficient grounds for absence. Absences, even when justified, may be taken into account in the grading process at the discretion of the instructors, who will keep the program director informed of absences and late arrivals.

If class attendance in any course is less than 80% and with the approval of the instructor, the student will automatically get a maximum grade of C on that course. Exceptions may be given with permission from the professor teaching that course and approval of the program director and the dean upon a prior notification.

Failure to comply with these policies is considered serious misconduct leading to potential dismissal or other action, as deemed appropriate by the instructor, the program Director/department Chair and the Dean.

3. STUDENT EVALUATION IN COURSES

Student evaluation in courses will be based on the following criteria:

- **Exams and assignments**
- **Classroom performance**
- **Attendance / Participation**
- **Cases**
- **Projects / Presentations**
- **Other criteria that the instructor deems important for the course**

Student evaluation tools are specified in each course syllabus. Students have the right to receive the breakdown of their final grades into different components.

4. EXAMINATIONS

Examinations are an integral part of any course and are conducted according to the following standards:

- **Students must pass examinations required for the successful completion of a course.**
- **Students may not communicate or collaborate with each other in any way during closed-book written examinations and when working on assignments, unless these are explicitly stated as group assignments.**
- **Books or notes may be used when taking an open-book examination with the specific authorization of the instructor, and then only, within the limits set by the instructor.**

5. GRADING

Nile University uses the credit hour system for its curriculum and is using the following grading system for its graduate studies:

Letter Grade	Grade Points	Description	Corresponding Points
A+	4.0	Excellent	99-100
A	4.0	Excellent	95-98
A-	3.7	Very Good	90-94
B+	3.3	Very Good	85-89
B	3.0	Good	80-84
B-	2.7	Conditionally Pass	77-79
C+	2.3	Conditionally Pass	73-76
C	2.0	Conditionally Pass	70-72
F	0.0	Fail	Below 70

The Corresponding points shown are recommended to help instructors in grading their courses and should only be used after normalizing the course grades. In order to graduate, students who score at the "conditionally pass" level must improve their GPA scoring at higher levels in other courses so that their GPA reaches 3.00 or higher. Grades that show on the student's transcript but are not included in calculating the GPA are:

I	**Incomplete**	**The student has not completed the course requirements and was allowed a grace period to complete it beyond the end of the semester.**
S	**Satisfactory**	**The student is working satisfactorily towards the completion of his/her thesis/dissertation.**
US	**Unsatisfactory**	**The student is not working satisfactorily towards the completion of his/her thesis/dissertation.**
W	**Withdraw**	**Student withdraws early enough before the instructor can evaluate his/her performance.**
WP	**Withdraw Pass**	**Based on the instructor's evaluation, the student's work was satisfactory up till the time of withdrawal.**
WF	**Withdraw Fail**	**Based on the instructor's evaluation, the student's work was unsatisfactory up till the time of withdrawal.**
P	**Pass**	**This grade is granted for a Pass/Fail course or a thesis.**
AU	**Auditor**	**This grade is granted for auditors as a proof for course attendance.**

Assignment of grades is the responsibility of the instructor. Based on the above grading system, a grade point average (GPA) is calculated for each student.

- **The Quality Points per course are calculated by multiplying the Grade Point Value obtained in the course by the course's credit hours.**
- **The Grade Point Average during a specific period is determined by dividing the summation of Quality Points earned during this period by the number of credit hours completed in the same period.**
- **Cumulative GPA is the summation of Quality Points of all courses divided by the total number of course credit hours completed.**

Thesis/ Project Paper

The student receives a grade of "P" when his/her thesis/ project paper is completed and successfully defended. Until then, the student semester evaluation on his/her progress towards completing a thesis/ Major Paper is granted a grade of "S" or "US".

6. THESIS PROCEDURE

Students opting for writing a thesis must have a thesis committee to advise them on the thesis research. Before the student can register in any thesis credit, the department/program

concerned nominates a thesis committee, in consultation with the student, to the dean of graduate studies/provost who approves and appoints the student thesis committee. The chairman and at least one member of the committee must be regular members of NU faculty and should be from the program or department of concentration. The third member may be from outside the program or department, but should be experienced in the thesis area.

The student cannot register for any thesis credit before completing 12 credit hours from his coursework with a cumulative GPA of 3.0 or higher. In addition students cannot register for all thesis credit in one semester.

The chair of the thesis committee will serve as thesis advisor to closely supervise the student's progress towards completing the thesis. However, the chair may delegate this task to another member of the thesis committee whose research agenda is more in line with the thesis area. The student and the advisor should report to the committee regularly on the candidate's progress towards completing the thesis.

The duties of the thesis committee are:

- **To review and approve the student's thesis proposal.**
- **To consult with and advise students on their research.**
- **To meet, at intervals, to review progress and expected results.**
- **To read and comment upon the draft thesis.**
- **To meet, when the thesis is completed, to conduct the final oral examination of the document and to satisfy itself that the thesis is an adequate contribution to knowledge, and that it is written in lucid and correct English and submitted in approved form.**

The candidate should have a final acceptable typescript of the thesis in the hands of each member of his/her committee at a reasonable time in advance of the final thesis defense.

A final public oral defense of the thesis is required. However, none but the members of the thesis committee may question the candidate. The thesis defense must be held, at least, one month prior to commencement. Upon passing the thesis defense, students must apply for graduation at the Registrar's Office and pay graduation fees.

Upon passing the thesis defense, five copies of the thesis in approved form on proper paper, one copy on a CD and nine copies of an abstract of not over 200 words will be handed in to the Office of Graduate Studies on or before the date specified in the calendar published each year, accompanied by a certificate of approval of the thesis defense signed by the thesis committee.

Any exceptions to the above guidelines must be approved by the program director, the dean of the school and the dean of graduate studies/provost.

7. PROBATION AND MASTERS GRADUATION REQUIREMENTS

To be eligible for graduation, students must complete a minimum of 75% of the credit

hours required for graduation at NU and accumulate a GPA of 3.0 or higher in a five year period. At the end of the first academic year, a committee composed of the program director and selected staff evaluates each individual's GPA, and will discuss with the student any concerns regarding his/her performance and the course of action required by the student for successful completion of the program. This process will be documented and included in the participant's academic file. A student whose GPA falls below 3.00 is put on probation and is given one semester to correct this discrepancy. If the student's GPA continues to be lower than 3.00 at the end of the probationary period, s/he will be subject to dismissal from the program. However, the student may submit a petition explaining the special circumstances that resulted in his/her low GPA. The student affairs committee reviews the case and may allow the student to register for one last semester, during which s/he must eliminate the GPA discrepancy; otherwise s/he gets dismissed from Nile University.

Upon completing the masters' requirements, students must apply for graduation at the Registrar's Office and pay graduation fees.

8. TRANSFER OF CREDIT

With the approval of the program director and the respective dean, up to 12 credit hours may be transferred from another accredited institution towards the degree requirements for the EMBA and up to 9 credit hours may be transferred from another accredited institution towards the degree requirements for other Masters programs. A grade of "B" or better must be earned in courses considered for transfer. In general, students cannot transfer more than 25% of the credit hours required for graduation in any graduate program. Credits that have been counted towards another degree cannot be transferred.

9. INCOMPLETE POLICY

Students who prove they have strong reasons for not completing a certain course maybe allowed to petition for an incomplete grade using appropriate forms which must be approved by the course instructor and program Director/department Chair. In this case, the student is granted a grade of "I".

Students must arrange with the instructor to complete the pending work before the end of the following regular semester. In case the student fails to complete the required work, s/he will be automatically granted the grade assigned for the work already submitted.

The "Incomplete Form" is available at the registrar's office, and should incorporate the following information:

- **Reason for requesting the incomplete grade.**
- **Pending materials and assignments required for course completion.**
- **Tentative grade on the work already submitted.**
- **Deadline for submission of incomplete work which must not be later than the end of the following semester.**

If students have more than one incomplete grade, the credit hours of the incomplete courses will be counted towards the academic load of their next semester. If they have only one incomplete grade, it will not be counted towards the academic load of their next semester.

Students must note that registration in some courses may be denied until the incomplete grade is changed to a passing grade.

By definition, students are not allowed to petition for incomplete after a final grade has already been recorded on the student's record.

10. VOLUNTARY WITHDRAWAL FROM COURSES

Students who wish to voluntarily withdraw from courses during the semester must get approvals from their instructors and program directors. If a student applies for withdrawal from a course(s) before the deadline for withdrawal without academic penalty, which is 15% of the course's contact hours, s/he gets a grade of "W" in that course(s). If the student applies for withdrawal from a course(s) after the above mentioned deadline, s/he gets grades of "WP" or "WF" in each course s/he withdrew from, depending on his/her performance in that course.

11. VOLUNTARY WITHDRAWAL FROM THE PROGRAM

Students who wish to voluntarily withdraw from the program during the semester must get approvals from their instructors and program directors.

If the student applies for withdrawal before the deadline for withdrawal without academic penalty, s/he gets a grade of "W" in all courses during this semester. If the student applies for withdrawal after the above mentioned deadline, s/he gets grades of "WP" or "WF" depending on his/her performance in each course.

Students who have withdrawn from a program and wish to apply for re-admission must do so in writing to the program director, one month in advance of the semester they intend to resume their studies in. The application must explain their activities since leaving the program, and the reasons for wanting to rejoin it. The director will then decide whether or not re-admission is granted, based on the information submitted and the students' performance in the program before withdrawal.

12. COURSE RETAKE POLICY

Except in cases of academic dishonesty, this policy allows a student who has received a grade of "C+" or less in a course to retake the same course or a substitute course. In this case, only the grade received when retaking the course will be counted towards the student's GPA. The grade received during the first time the student took the course will be shown on his/her transcript, but will not count towards the student's GPA.

Under this policy, EMBA students could repeat up to a maximum of 8 credit hours of course work, while students in other programs are allowed to repeat up to a maximum of 6

credit hours of course work. According to this policy, the student is allowed to retake the same course or a substitute course upon the approval of the program director.

13. RE-ADMISSION OF STUDENTS WITH ACADEMIC DIFFICULTIES

Students who were dismissed from the program because of academic difficulties may apply for re-admission if they had completed all the first-year courses with a GPA of 2.50 or higher. Students cannot be readmitted before two years have elapsed since their dismissal, nor after four years since that date. In exceptional circumstances, the minimum period may be reduced to one year.

Students who were dismissed from the program because of academic difficulties in the second year may apply to be readmitted in the term following the one in which the difficulties arose.

The application for re-admission to the program must include a description of the professional activities performed since the withdrawal. Students must also make a compelling argument why they should be readmitted to the program. The student may be asked to take a re-admission examination, and the program director and selected faculty members will then decide on the re-admission applications.

14. ACADEMIC INTEGRITY POLICY

Nile University, its faculty, staff and students value and adhere to the concepts of academic integrity and the highest level of academic and professional conduct. In their quest for knowledge, the university community must uphold high levels of integrity and ethical conduct in all its pursuits including teaching, learning, research and service. Dishonesty in the pursuit of knowledge is not acceptable and includes, but is not limited to:

a) **Dishonest submission of documents for grade, examples: Plagiarizing reports/cases; cheating on exams or assignments; multiple submissions of the same work for grades; fabrication of data or documents.**
b) **Obtaining or attempting to obtain an unfair advantage, examples: Gaining access to exams; stealing or destroying library or research materials; unauthorized collaboration on assignments; unauthorized retention or circulation of previous exams; interfering with other students' work.**
c) **Unauthorized access to records, examples: Viewing or interfering with confidential computer records or programs or systems, releasing unauthorized information gathered.**
d) **Aiding and abetting: Providing material, information, or other assistance which violates standards for academic integrity.**
e) **Threatening, effecting or encouraging bodily, professional, or financial harm to faculty, staff, administrator or student.**

The university reserves the right to take disciplinary action against the violating party(s) according to the principles/procedures shown below. An instructor has full authority to deal

with an academic dishonesty incident within the context of his/her course. Disciplinary action, in this case, may cover the range from reprimand to "F" for the course grade. The instructor may also recommend suspension or dismissal from the university.

The instructor's action on incidents of academic dishonesty must be communicated to the student(s) involved; and to: the Dean/program Director and the Vice President for Student Affairs within two weeks of the time the instructor became aware of the incident. All students involved in academic dishonesty will receive an official letter of warning from the Vice President for Student Affairs, a copy of which will remain in the students' file in the department as well as in the Student Affairs Office and/or the Provost's office.

When a case of academic dishonesty is reported with a recommendation for suspension or dismissal from the Instructor, the Dean of student affairs will form an ad-hoc Academic Integrity Committee to investigate the case. The Committee will meet promptly to investigate the case and submit a recommendation to the Vice President who makes the final decision on the case.

Once the Academic Integrity Committee has given a hearing to the student and submitted its recommendations, no further appeal may be made unless substantial new evidence is presented to the Vice President for student affairs, who will evaluate the evidence and reopen the case, if deemed necessary.

15. TRANSCRIPTS

Students graduating or withdrawing while in good standing are granted one free transcript of their academic record at NU.

Transcripts requests will not be processed during registration, examination or graduation periods stated in NU calendar.

FACULTY (أعضاء هيئة التدريس)

NU faculty members teaching in the Microelectronics System Design Program have strong academic records and diverse experience in the private and public sectors of the Microelectronics industry. In addition, a number of internationally recognized professors from leading universities in Canada, USA, and Europe who teach in the program and actively participate in collaborative research projects with NU faculty.

FULL TIME FACULTY

The table below summarizes the qualifications of NU Faculty that are affiliated with the MSD program. The MSD program benefits from interdisciplinary academic environments as outlined below. The program makes available to its students courses offered in the Management of Technology and Executive MBA Programs.

position	Name	Position at NU	University
Full Time	Dr. Ahmed Radwan	Professor	Cairo University
	Dr. Ahmed Madian	Associate Professor	Cairo University
	Dr. Lobna Said	Assistant Professor	Cairo University
	Dr. Ahmed Soltan	Assistant Professor	Cairo University
MOT & CIT Team	Dr. Tarek M. Khalil	Professor	University of Miami, USA
	Dr. Marianne Azer	Associate Professor	Cairo University
	Dr. Nashwa Abdel-Baki	Associate Professor	Ulm University, Germany
	Dr. Mohamed Awny	Associate Professor	Queen Mary College, University of London, UK
Supportive part Time	Dr. Hassan I. Saleh	Professor	Cairo University
	Dr. Ahmed Elwakil	Adjunct Professor	University college Dublin,UK

STAFF (الموظفون):

MSD SUPPORT STAFF

MSD Faculty are assisted by a Program Coordinator. The responsibility of the Coordinator includes:

- **Assisting the Program Director in running the program and advising the students.**
- **Developing files of each course taught in the programs.**
- **Preparing the course schedule and participating in long range course planning.**
- **Keeping academic records of students and updating their study plans.**
- **Providing assistance during the registration process and all along the semester duration.**
- **Orienting visiting faculty on the university regulations, the program goals, the use of the Moodle (Course Management System) as well as facilitating their teaching experience at NU.**

- **Following up on all the financial and payment issues related to both students and visiting faculty.**
- **Handling the teaching evaluations and the course assessment forms.**

STUDENT AFFAIRS

NU student affairs staff is responsible for all student-related activities. The department is headed by the Dean of Students who directly reports to the Vice President for Student Affairs. The department's main responsibilities are categorized as follows:

1- **Student Recruitment**
The student recruitment team is composed of a unit supervisor, two senior officers and one junior officer. The unit's main tasks are:
- **Answering inquiries related to the university, its programs, admission process and deadlines.**
- **Participating in recruitment events and academic fairs.**
- **Visiting companies and giving presentations on the university's academic programs in order to spot and attract potential students.**
- **Preparing recruitment materials in collaboration with the marketing department.**

2- **Admission**
The admission team is composed of one senior officer and one junior officer who are responsible for the following:
- **Receiving applications. Application forms are available on the university's Website so that applicants can either send it via e-mail or hand it to the admissions office.**
- **Checking that the application package includes all required documents mainly the applicant's original graduation certificate and transcript, personal statement, CV, letters**
- **of recommendation and proof of English Proficiency. Applicants are required to submit a minimum TOEFL ibt score of 61 or a minimum ILETS academic score of 5.5 or sitting for NU English test.**
- **Arranging for NU English Test.**
- **Coordinating with the Program Directors to conduct admission interviews.**
- **Informing applicants of their admission status:**
    - **Full Admission: All Documents and admission tests are submitted and approved.**
    - **Provisional Admission: One admission criterion mainly GMAT or GRE is missing and is required to be submitted by the end of the first semester.**
    - **Rejection: Applicant's profile does not meet the program's admission criteria.**

The admission decision depends on the applicant's qualifications, academic records, relevant work experience and performance at the interview.

- **Preparing acceptance letters and providing students with guidelines on tuition payment, registration, academic calendar and the university's academic policies and procedures.**
- **Organizing orientation day to get students informed on all aspects of their graduate studies at NU.**
- **Registering students at the Supreme Council of Universities.**

3- **Registration**
The registrar team is composed of two senior officers who are responsible for the following:
- **Registering students in courses and preparing class lists accordingly.**
- **Processing students' requests (drop/add, withdrawal, petition, etc)**
- **Updating students' academic records (grades, GPAs, transcripts, etc) and identifying students on hold and on probation.**
- **Informing students of any academic problem that requires clearance before registration.**
- **Preparing students statistics.**
- **Coordinating with program directors to devise semester's schedules.**
- **Issuing official certificates and transcripts.**

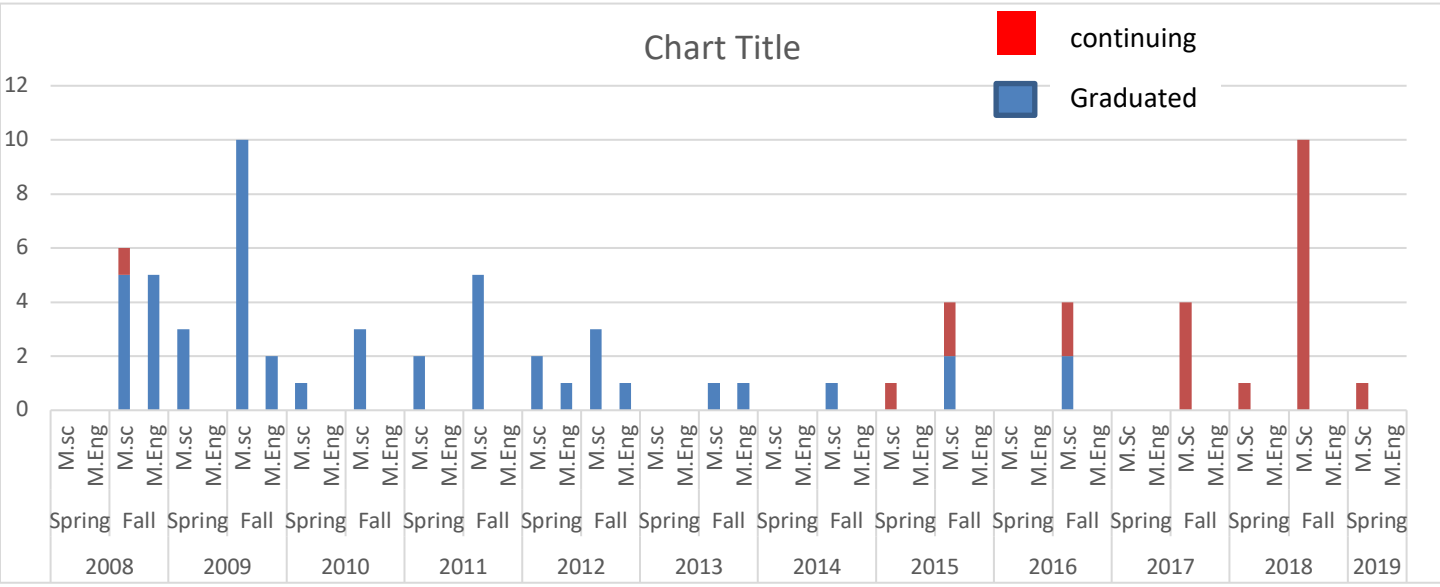
NU SUPPORT STAFF

Other NU support staff covers the areas of marketing communication, administration and finance. The table below shows the number of NU staff in the different departments.

Department	# of NU Support Staff (numbers should be revised by HR)
Marketing Communication / Institutional Development	4
Human Resources	3
IT Department	6
Support Services & Facility Management	22
Finance	8
Library	4

STUDENTS IN THE MSD PROGRAM

New Registered Students by Semester per year:



By the end of Spring 2019, 4 students expected to successfully complete their graduation requirement.

APPENDIX I – FACULTY BIOGRAPHIES

DR. AHMED G. RADWAN

Ahmed G. Radwan (Senior member IEEE) is a Professor in the Engineering Mathematics and Physics Department, Cairo University, Egypt, and Head of Research and Sponsored Projects, Nile University, Egypt. He was the Former Director of Nanoelectronics Integrated Systems Center (NISC), Nile University, Egypt. He was the Former Director
of the Technical Center for Carrier Development (TCCD), Cairo University. Dr. Radwan was a visiting Professor in Computational Electromagnetic Lab (CEL), Electrical and Computer Engineering department (ECE), McMaster
University, Canada in the interval [2008 – 2009], then he was selected to be a part of the first foundation research teams to join KAUST (King Abdullah University of Science and Technology) during the interval [2009 -2011]. His
research interests include interdisciplinary concepts between mathematics and engineering applications such as fractional-order systems, bifurcation, chaos, memristor, and encryption.
Dr. Radwan has more than 250 papers, h-index 35, and more than 3500 citations based on Scopus database. He is the Co-inventor of 6 US patents, author/Co-author of 7 international books as well as 18 book chapters in the highly ranked publishers such as Elsevier and Springer. He was selected as a member of the first scientific council of Egyptian Young Academy of Sciences (EYAS) as well as in the first scientific council of the Egyptian Center for the Advancement of Science, Technology, and Innovation (ECASTI) to empower and encourage Egyptian young scientists in science and technology and build knowledge-based societies.
Dr. Radwan received several awards nationally and internationally for example: -

➢ Received the State Excellence Award in Advanced Technological Sciences, 2018.

➢ Received the Excellence Cairo University Award in Engineering Sciences, 2016.

➢ Received Prof. Mohamed Amin Lotfy Award, “Afrad Awards” in Mathematical Sciences, 2016.

➢ Received Abdul Hameed Shoman Award for Arab Researchers in the Applied Sciences (Information and Data Security), 2015.
This award is considered as one of the most prestigious awards in the Middle-East since 1982 by Arab-Bank.

➢ Received the Cairo University achievement award for research in Engineering Sciences in 2013.

➢ Received the State achievements award for research in Mathematical Sciences in 2012.

➢ Received the Physical Sciences award in the 2013 International Publishing Competition by Misr El-Khair Institution.

➢ Received Prof. Hazam Ezzat Best Researcher Awards in Nile University through the years 2015, 2016, and 2017 indivdually.

➢ International Publications Award Endowed by Cairo University for the top researchers in all fields through the years 2011, 2012,
2013, 2014, 2015, 2016, 2017, and 2018 individually.

➢ He is the Co-inventor of Six US patents (US2015/0008988 A1 - US 2014/0240894 - US 2014/0239446 - US 2012/0123750 - US
2012/0226724 - US 9,304,740 B2).

➢ Invited to serve as MC Observer of E-COST (European Cooperation in Science and Technology) http://www.cost.eu

➢ Supervised 12 PhD. and 15 M.Sc. students in different research topics.

➢ Member of the Applied Research Council, Specialized Scientific Councils (SSC), ASRT, Egypt.

➢ Member of the National Committee of Mathematics, ASRT, Egypt.

➢ Best Thesis Supervisor for the PhD student Ahmed sultan Ali, EECE Department, Cairo University during 2013 – 2015, (Senior
Researcher in Newcastle University, UK).

➢ Best Thesis Supervisor for the M.Sc. student Amr Ali El-Selehdar , Nile University, 2014 (Researcher in Mentor Graphics
International Company).

➢ Best Thesis Supervisor for the Ph.D. student Rawhy Ismail, Engineering Mathematics and Physics Dept., Ain Shams University,
2015 (Assistant Prof. in Ahram Canadian University).

➢ Best Thesis Supervisor for the M.Sc. student Mohamed F. Tolba , Nile Univ., 2018 (Researcher in Khalifa University, UAE).

➢ Best Thesis Supervisor for the PhD student Lobna Said, EECE Department, Cairo University during 2016 – 2018, (Assistant
Professor, Engineering School and Applied Sciences, Nile University).

➢ Best Thesis Supervisor for the PhD student Nagwan Gamal, Civil Department, Cairo University during 2016 – 2018, (Assistant
Professor in Faculty of Engineering, Cairo University).

➢ Won the best master thesis prize in the department during the period (2001-2004), Faculty of Engineering - Cairo University, Egypt.

➢ Won the best paper award in the international conferences ICM2011 (Tunis), ICM2013 (Lebanon), MOCAST2017 (Greece).

➢ Received the best posters in different international conferences ICECS2015-Egypt and ECTI-CON2016-Thailand.

➢ He received many research grants as Principle Investigator (PI), CO-PI, or Consultant from different national/international
organizations such as ASRT, STDF, Cairo Univ., and Newton Moshrafa Funding agency.

➢ He was the Technical Program Co-chair in the 28th IEEE Int. Conference in Microelectronics (ICM2016), Cairo, Dec. 2016.

➢ Organized several special sessions: PIER2011 (China), PIER2012 (Malaysia), NOLTA2015 (Hong Kong), MOCAST2017-(Greece).

➢ He was selected as an Invited speaker in different courtiers: Sharjah Univ. (2010), Jordon Univ. (2011), KAUST - KSA (2016),

and Brno Univ. Czech Rep. (2016) and invited to many national seminars/workshops in different universities such as: Ain-Shams
(Eng.), Alexandria (Sci.), Cairo (Sci.), GUC, and in the workshop “Interact With Today's World IWT2014” Alexandria Biblothique.

➢ Selected to be the Counselor of the IEEE Nile University Student Branch (NUSB) in the interval from Oct. 2014- up-till 2016.

➢ Founder of the series of “NU Undergraduate Research Forum” since 2015 http://nu.edu.eg/research-forum/

➢ Invited to be Lead/Guest Editor of different special issues such as CSSP (1,694), Complexity (4.621), AEU (1.99), and MEJ (1.322).

➢ He is on the top list of authors worldwide in the track “Network (Circuits); Design; Fractional Calculus” based on Scival database.

DR. AHMED H. MADIAN

Dr. Ahmed H. Madian, received his bachelor’s degree (with honors) in Electronic and Communication Engineering, Cairo University, Egypt, in 1997. Then, he received the master's and doctoral degrees in Electronics and communications, Cairo University, Cairo, Egypt in 2001, 2007 respectively. He is currently an associate professor in the Radiation Engineering Department, Micro-Electronics Design Center, Egyptian Atomic Energy Authority, Cairo, Egypt. Since 2014, he is serving as the director of Microelectronics Systems Design Master program, Nile University.

His research interests are in circuit theory; low-voltage analog CMOS circuit design, current-mode analog signal processing, Memristors, Fractional systems, VLSI, Encryption systems and mixed/ digital applications on field programmable gate arrays.

Dr. Madian is co-founder for the robotics and automation systems Egypt chapter (RAS) (best IEEE chapter award 2013). Also, he was the manager of GAMMA radiation facility quality system assurance, Egyptian Atomic Energy Authority for two years. He participates in many research projects funded from ASRT, TIEC, and STDF. He is a senior member IEEE. He is a member of the National Committee for Radio sciences, ASRT. Also, he served in the technical and organizing committee for many international conferences. He published more than 100 papers in international conferences and Journals.

DR. Lobna A. Said

Dr. Lobna A. Said is a full-time assistant professor in the faculty of Engineering and applied science, Nile University. She is Head of fractional-order circuits and systems research track of NISC research center. She has H-index 10 as reported by Scopus with total citations of 311, with more than 53 publications distributed between high impact journals, conferences, and book chapters. Her research interests are interdisciplinary including system modeling, control techniques, optimization techniques, analog and digital integrated circuits, Fractional order circuits and systems, Non-linear analysis, and chaos theory. She received the Recognized reviewer award from many international journals. She is the Vice-chair for research activities at the IEEE computational intelligence Egypt chapter. She received the Excellence Award from the Center for the Development of Higher education and Research for 2016. She worked in many research grants as a senior researcher from different national organizations

Dr. Ahmed Soltan

Ahmed Soltan received the B.Sc. and M.Sc. degrees from the University of Cairo, Cairo, Egypt, in 2004 and 2008, respectively. He received the Ph.D. degree in electronics and communication from Cairo University in 2014. He received the 2014–2016 best thesis award from Cairo for his Ph.D. thesis. He worked on circuit and system design and modelling in the fractional order domain during his Ph.D. research. He is currently a Research Associate and EDA/CAD Specialist with the School of Engineering, Newcastle University, Newcastle upon Tyne, U.K. He was a Teacher Assistant with the faculty of Engineering, Fayoum University, Fayoum, Egypt, for nine years and was an R&D Firmware Engineer for eight years. He also was an R&D Manager for an LED company at Qatar for one year and half. His current research interests include smart energy harvesting systems and power management for biomedical implantable devices and lab-on-chip systems. He is also interested in the thermal impact of the implantable devices on the human tissues, embedded system design for lab-on-chip system, the investigation of fractional circuits and systems, specifically in fractional order analog filters for signal processing, and fractional order modelling for biomedical applications. Dr. Soltan's research aims to establish a new

healthcare monitoring system and diagnosis on the fly by development of autonomous devices. Dr. Soltan published more than 50 papers in a prestige journals

Research interests

Healthcare monitoring: according world health organization (WHO) there are 8 doctors per 10000 people in Egypt and less than 15 doctors per 10000 people for more than 40% of the WHO members. Hence, it is essential now to have wearable devices which can do diagnosis on the fly for people especially with the population growing rate. So, the aim of my research is to develop an autonomous wearable devices to continuously monitor the vital conditions for both healthy and non-healthy people. In order to achieve this, I am aiming to develop disposable self-powered devices which are able to monitor the body conditions such as temperature, blood pressure and glucose.

Smart energy harvesters: Internet of things (IOT) and sensors in remote areas become of the essential needs for the current technologies in different disciplines such as agriculture, healthcare and communications. The bottleneck for all these technologies is the power source and the batteries which limits the functionalities and the lifetime. Hence, in my research I will develop a smart energy using artificial intelligence to harvest energy from the surrounding conditions. The energy harvester will be able to not only supply the power to the device but also to control the system performance based on the available power budget. This will minimize the power interruption and improve the device survivability.

Flexible/bendable electronics: flexible electronics became recently a very important topic due to the different applications for flexible electronics such as healthcare and sensors. Yet, till date there is no model for the electronic components on the flexible substrate which limits the design process. Hence, the aim of my research is to develop a CAD model for the electronic components on the flexible substrates. These models will automate the design process for the circuit design on the flexible substrate.

Support Part time Team

DR. AHMED S. ELWAKIL

Ahmed Elwakil was born in Cairo, Egypt. He received the B.Sc. and M.Sc. degrees from the Department of Electronics and Communications at Cairo University, Cairo, Egypt and the Ph.D. degree from the Department of Electrical and Electronic Engineering, National University of Ireland, University College Dublin. He is currently with the Department of Electrical and Computer Engineering, Sharjah University, United Arab Emirates, where he is a Professor. He is also an Adjunct Professor at the Nanoelectronics Integrated Systems Center (NISC), Nile University, Cairo, Egypt. His research interests are primarily in the areas of Fundamental Circuit Theory, Nonlinear Dynamics, Chaos Theory, as well as Fractional-Order Circuits and Systems with diverse applications ranging from the modeling of energy devices, bio-materials and nanodevices to the design of oscillatory networks and basic analog electronic circuit blocks. He is the author and co-author of over 170 publications in these areas and is currently classified among the top 7.5% researchers worldwide based on his RG Score on Research-Gate.

Prof. Elwakil currently serves as an Associate Editor for the Int. J. of Circuit Theory and Applications (Wiley) and was a past Editor of this journal. He is also an Associate Editor of the Int. J. Bifurcation & Chaos, published by World Scientific, the Journal of Nonlinear Theory and its Applications (NOLTA), published by the Institute of Electronics, Information and Communication Engineers (IEICE-Japan) and is a past Associate Editor for the J. of Dynamics of Continuous, Discrete and Impulsive Systems: Series-B, published by the American Institute of Mathematical Sciences (AIMS). He is currently serving on the editorial board of the IEEE J. Selected and Emerging Topics in Circuits and Systems and has served as a reviewer, review committee member and organizing committee member for many conferences including ISCAS, NOLTA, ICECS, ECCTD, ICM, NDES and ISSPA.

Prof. Elwakil is an Associate Member of the Centre for Chaos Control and Synchronization at the City University of Hong Kong and has served as an instructor for a number of courses organized by the United Nations University (UNU) and the International Centre for Theoretical Physics (ICTP, Trieste, Italy), where he was also an Associate member. He was a Keynote speaker at the Sixth International Workshop on Chaos Fractals and Applications, Taiyuan, Shanxi, China, August 2013 and a keynote speaker at the Int. Conf. on Fractional Differentiation and Its Applications (ICFDA), Catania, Italy, June 2014. He has been a member of the IEEE Technical Committee on Nonlinear Circuits and Systems (TCNCAS) since 2003.Prof. Elwakil was a Lead Guest Editor for the IEEE J. of Emerging and Selected Topics in Circuits & Systems, special issue on fractional-order circuits and systems (Sep. 2013) and a Guest Editor for a special issue on Chaos-Fractals Theories and Applications published in the J. of Mathematical Problems in Engineering, 2014.

Dr. Hassan Ibrahim Mohamed Hassan Saleh

Dr. Hassan Saleh is currently a Professor of Computer Engineering and the head of Radiation Engineering Dept., Egyptian Atomic Energy Authority (EAEA), and part-time professor at Nile University. He received his B.Sc., M.Sc. and Ph.D. degrees from Electronics and Electrical Communications Dept., Faculty of Engineering, Cairo University, Egypt in 1992, 1998, and 2003, respectively. Dr. Saleh is the national coordinator of AFRA-NEST (Network of Nuclear Education, Science, and Training, IAEA) and the Scientific Advisor for the Information Center of EAEA. Dr. Saleh has been an Assistant Professor and head of Physical and Applied Sciences Dept. in the Gurayat Community College, King Saud University (2005-2010). Dr. Hassan Saleh has been a visiting professor in MIU (2010-2011), MSA (2011-2012), AASTMT (2012-2018). He has authored and co-authored 2 books and over 60 research publications in peer-reviewed reputed journals and international and national conferences. Dr. Saleh's research focuses on Digital Signal Processing, Image Processing, Computer Vision, Artificial Intelligent, Instruments, and Simulation of Radiation and Nuclear systems.

MOT and CIT Team

DR. TAREK M. KHALIL

Dr. Khalil is President at Nile University. He also is Professor of Management of Technology. He has been holding the rank of tenured professor of Industrial Engineering at the University of Miami since 1977. He also held a secondary appointment at the rank of professor in the Department of Biomedical Engineering, Professor of Epidemiology and Public Health and Professor in the Department of Neurological Surgery at the University of Miami. Dr. Khalil received his Ph.D. in Industrial Engineering from Texas Tech University in 1969. He holds a Bachelor in Mechanical Engineering from the University of Cairo and a Master of Science in Industrial Engineering from Texas Tech University. Dr. Khalil is a registered Professional Engineer in the State of Florida as well as in the Syndicate of Engineers in Egypt.

He has been involved with the higher education system in the USA for 40 years.

Dr. Khalil's experience includes serving as Chairman of the Department of Industrial Engineering at the University of Miami for 10 years and subsequently as Dean of the Graduate School at the University of Miami. He also served as the Director of the Management of Technology Program, the Environmental Health and Safety Program and the Ergonomics and Bioengineering Division of the Comprehensive Pain and Rehabilitation Center. He developed and directed many engineering and interdisciplinary programs within the University of Miami including the joint MBA/MSIE, The Management of Technology, and the Occupational Safety and Health programs. He is the Founder and Chairman of the Board of Directors of the International Association for Management of Technology, an association with membership from more than 85 countries. He has also served as Chairman of the Council of Fellows of the Institute of Industrial Engineers, as Vice President of the Institute for the Southeast Region and as Director of the Work Measurement and Methods Engineering Division. Dr. Khalil has served as a consultant to governments, industry and educational institutions worldwide for many years. He is nationally and internationally recognized in the areas of Management of Technology, Industrial Engineering and Ergonomics having received many national and international awards in his fields.

DR. MOHAMED MAMDOUH AWNY

Dr. Awny is an Associate Professor at Nile University teaching in the School of Business & School of Management of Technology (MOT). Dr. Awny has a well balanced blend of in-depth experiences in academia, applied research, and industry.

He obtained his Ph.D. from Queen Mary College, University of London, UK in computer control of engine testing. He has been granted B.Sc. and M.Sc. degrees in Aeronautical Engineering from Cairo University.

He worked in the research and development of ground-to-ground missiles for the Aerospace Industry in Egypt. He was a consultant to Ford Foundation in UK. He worked for the Arab-Organization for Industrialization since its establishment in Egypt. He was a member of the High Committee for the establishment of the anti-tank missile factory and responsible for the negotiations with the British partners for technology transfer. He was the Deputy Manager of the Arab Institute for Aerospace Technology, Egypt. He worked as the Director General of Information Technology Center at the Arab Organization for industrialization. He was the Vice-President and Director of Consulting and Information Technology, at Engineering and Management Consultants Company (TEAM International) based in Cairo. He was the Director General for Small Enterprise Development Organization, the Social Fund for Development, The Cabinet of Egypt.

Before joining Nile University he was the Director of Technology Management Program, College of Graduate Studies, Arabian Gulf University, Kingdom of Bahrain (2002-2009). He was the Chairman of the International Task Force composed by the UN for the development of the Informal Sector in Africa (UN-OSCAL). He was a member of the UN-expert Group in Public Administration and Finance (UNCTAD). He was a member of the Economic Committee of the National Council of Women in Egypt. He is a member and founder of the Egyptian Incubator Association. He is also a member and founder of the Association of Managers of Information Centers, USA/Egypt. He is a member and founder of the Bahraini Society of Technology Transfer. He is a member of the International Association of Management Of Technology (USA). He has many publications and internationally well recognized expert with quite wide spectrum of experience.

DR. NASHWA ABDEL BAKI

Dr. Nashwa Abdelbaki received her Doctor of Engineering (Dr.-Ing.) degree in the field of multimedia networking from Faculty of Engineering, Ulm University, Germany. Supported by her German DAAD scholarship to work on her Ph.D. degree, she led a research program focused on the future integrated multimedia networking architecture and services in a collaborative adaptive interactive environment. She received her M.Sc. degree from Faculty of Engineering, Ain Shams University in Cairo, Egypt, and B.Sc. from Faculty of Engineering, Cairo University. Currently she is Director, Information Security Program, School of Communication and Information Technology, Nile University. She is also leading the research group cloud computing and multimedia communication to introduce an adaptive interactive learning environment with emphasis on student-teacher collaboration.

DR. MARIANNE AMIR AZER

Dr. Marianne Azer is an Associate Professor in the School of Information technology and computer science (ITCS), Information Security Department. She received her Ph.D. from Cairo University, Faculty of Engineering, Electronics and Communications Department. She also received her MSc. and BSc. from the same university. Her current research is focused on security in wireless networks, cloud computing security, e-learning, engineering education, and women education. She has many international peer-reviewed publications and was recently awarded from the Academy of Scientific Research in Egypt for her publications. She was ranked last year as one of the top 10 speakers communicating science in Egypt. She received other fellowships and awards on both National and International levels.