Australian National University - Canberra

Course Description

Bachelor Degree

Software Engineering

Remarks:

Course descriptions serve as a vital resource for students or graduates, providing a comprehensive overview of the course objectives, content, and structure. They outline the key topics to be covered, the learning outcomes expected etc.

The information in this file has been meticulously collected by user from their university portals or academic institutions. It is intended to provide accurate and helpful details to support students in their academic journey.

Course descriptions are not only useful for students planning their studies, but also for faculty and academic advisors in curriculum development, ensuring alignment with educational standards and objectives. They also assist employers in understanding the academic background and skills of graduates.

Grading systems differ across institutions and countries, but they share a common goal of assessing student understanding and performance. It is important for user to familiarize themselves with the grading criteria and expectations of their respective institutions to achieve academic success.

Note : This document has been prepared at **User Name's** request.

Title of the Course: General Mathematics 1

Code: SG400

Number of Credits: 3 Theoretical

ECTS: 17

Type of the Course: Basic

Training hours: 51h Theoretical

Course Objectives:

Basic concepts of Calculus and Geometry will be taught to the students in this course which provides necessary background for technical courses.

Syllabus:

Cartesian coordinates; polar coordinates; complex numbers; addition, product, root & geometrical representation of complex numbers; polar representation of complex numbers; function; functions algebra; limit and relevant theorems; infinite limit and limit in infinite; left-hand and right-hand limit; connectivity; derivative; derivation formula; inverse function and its derivative; trigonometric functions derivative and their inverse functions; Rolle’s theorem; mean theorem; Taylor expansion; geometrical and physical applications of derivative; curves and acceleration in polar coordinates; application of derivative in approximation of equations roots; definition of integral of continuous functions and piecewise continuous; basic theorems of differential & integral arithmetic; primitive function; approximate methods of integral estimate; application of integral in computation of area, length of curve, moment, center of gravity and labor ….(in Cartesian and polar coordinates); logarithm and exponential function and their derivative; hyperbolic functions; integration methods such as change of variable, component and decomposition of fractions; transform of special variables of sequence and numerical series and relevant theorems; power series and Taylor theorem with remainder.

Learning Outcome:

- Learning Outcome 1
- Learning Outcome 2
- Learning Outcome 3

TextBooks:

1- R.L. Finney, G.B. Thomas, Calculus and Analytic Geometry, Geometry, 9th Edition, Addison Wesley, 1996

Additional Info:

- Additional Info 1
- Additional Info 2
- Additional Info 3

Title of the Course: Software Engineering 1

Code: SG600

Number of Credits: 2 Theoretical & **1 Practical**

ECTS: 26

Type of the Course: Major

Training hours: 34h Theoretical & **34h Practical**

Course Objectives:

The purpose of this course is to address the engineering points that must be observed in all stages of software production. In this course, students are introduced to the activities and tools needed to produce a software product.

Syllabus:

Importance and objectives of software engineering; planning; stages and design stages controlling; principles of needs analysis; methods of needs analysis; principles of software design; study of several known methods of design such as data structure, data flow, functional, aimed and immediate analysis, outstanding points of programming languages in viewpoint of software engineering, software accuracy and confidentiality, software maintenance, performance of a practical project.

Learning Outcome:

- Learning Outcome 1
- Learning Outcome 2
- Learning Outcome 3

TextBooks:

1- Software Engineering, A Practical Approach, Roger S. Pressman, R. S. Pressman, 1987

Additional Info:

- Additional Info 1
- Additional Info 2
- Additional Info 3

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University Info :

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Website : www.anu.edu.au

Course	Credits	Description
General Mathematics 1 **Code :** SG400 **ECTS :** 17	**3 Theo**	**(Duration: 51 hours Theoretical)** **(Type of Course: Basic)** **Course Objectives:** Basic concepts of Calculus and Geometry will be taught to the students in this course which provides necessary background for technical courses. **Syllabus:** Cartesian coordinates; polar coordinates; complex numbers; addition, product, root & geometrical representation of complex numbers; polar representation of complex numbers; function; functions algebra; limit and relevant theorems; infinite limit and limit in infinite; left-hand and right-hand limit; connectivity; derivative; derivation formula; inverse function and its derivative; trigonometric functions derivative and their inverse functions; Rolle's theorem; mean theorem; Taylor expansion; geometrical and physical applications of derivative; curves and acceleration in polar coordinates; application of derivative in approximation of equations roots; definition of integral of continuous functions and piecewise continuous; basic theorems of differential & integral arithmetic; primitive function; approximate methods of integral estimate; application of integral in computation of area, length of curve, moment, center of gravity and labor ....(in Cartesian and polar coordinates); logarithm and exponential function and their derivative; hyperbolic functions; integration methods such as change of variable, component and decomposition of fractions; transform of special variables of sequence and numerical series and relevant theorems; power series and Taylor theorem with remainder. **Learning Outcome:** - Learning Outcome 1 - Learning Outcome 2 - Learning Outcome 3 **TextBooks:** 1- R.L. Finney, G.B. Thomas, Calculus and Analytic Geometry, Geometry, 9th Edition, Addison Wesley, 1996 **Additional Info:** - Additional Info 1 - Additional Info 2 - Additional Info 3

Software Engineering 1 **Code :** SG600 **ECTS :** 26	**2 Theo** + **1 Prac**	**(Duration: 34 hours Practical & 34 hours Theoretical)** **(Type of Course: Major)** **Course Objectives:** The purpose of this course is to address the engineering points that must be observed in all stages of software production. In this course, students are introduced to the activities and tools needed to produce a software product. **Syllabus:** Importance and objectives of software engineering; planning; stages and design stages controlling; principles of needs analysis; methods of needs analysis; principles of software design; study of several known methods of design such as data structure, data flow, functional, aimed and immediate analysis, outstanding points of programming languages in viewpoint of software engineering, software accuracy and confidentiality, software maintenance, performance of a practical project. **Learning Outcome:** - Learning Outcome 1 - Learning Outcome 2 - Learning Outcome 3 **TextBooks:** 1- Software Engineering, A Practical Approach, Roger S. Pressman, R. S. Pressman, 1987 **Additional Info:** - Additional Info 1 - Additional Info 2 - Additional Info 3