



## Course and Examination Fact Sheet: Spring Semester 2020

### 8,046: Business Process Management and Complex Event Processing

ECTS credits: 6

#### Overview examination/s

(binding regulations see below)

Decentral - examination paper written at home (individual) (25%)

Decentral - Group examination paper (all given the same grades) (15%)

Decentral - Group examination paper with presentation (all given the same grades) (60%)

#### Attached courses

Timetable -- Language -- Lecturer

[8,046,1.00 Business Process Management and Complex Event Processing](#) -- Englisch -- [Weber Barbara](#)

#### Course information

##### Course prerequisites

Students attending this course should have basic knowledge on how to use the command-line of their computer and in installing non-trivial software. Some programming experience is highly recommended. Moreover, students attending this course should like to assess and use complex technologies.

##### Learning objectives

Aim of this course is to provide students with an understanding of how business process management technologies and complex event processing can be used to operationally support business processes.

Disruptive technologies like the Internet of Things (IoT) penetrate every aspect of our life and every business domain and provide opportunities to design novel business processes. IoT devices serve as data and event source allowing for real-time monitoring of business processes and just-in-time decision making.

Learning Objective 1: The course will enable students to monitor and process events from IoT device.

This requires stream processing technology (e.g., complex event processing) to transfer low-level events collected by the IoT devices to business relevant events.

Learning Objective 2: The course will allow students to apply complex event processing to detect business relevant events that can be integrated into business processes.

Upon the detection of business relevant events respective responses can be triggered

Learning Objective 3: The course will enable students to use process-oriented systems (i.e., business process management technologies) and services to automate processes



Learning Objective 4: Moreover, the course will teach students how to integrate business relevant events into business processes.

## Course content

- Monitoring and processing of events from IoT devices and online services
- Analysis of complex event streams (combining different data sources) to infer business relevant events
- Process-oriented systems and services for automating business processes
- Integration of business relevant events and business processes

## Course structure

The course will be conducted on a weekly basis. Lectures will be combined with practical exercises closely aligned to the lecture. Towards the end of the semester a team project will be conducted.

## Course literature

Literature on Business Process Management

- Marlon Dumas, Marcello La Rosa, Jan Mendling, Hajo A. Reijers: Fundamentals of Business Process Management, Second Edition. Springer 2018, ISBN 978-3-662-56508-7, pp. 1-527.
- Mathias Weske: Business Process Management - Concepts, Languages, Architectures, 2nd Edition. Springer 2012, ISBN 978-3-642-28615-5, pp. I-XV, 1-403.

Literature on Complex Event Processing:

- Opher Etzion and Peter Niblett. 2010. Event Processing in Action (1st ed.). Manning Publications Co., Greenwich, CT, USA.
- David Luckham: The Power of Events. Addison Wesley, 2002.

## Additional course information

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## Examination information

### Examination sub part/s

#### 1. Examination sub part (1/3)

##### Examination time and form

Decentral - examination paper written at home (individual) (25%)

##### Remark

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##### Examination-aid rule

Term papers

- Term papers must be written without anyone else's help and in accordance with the known quotation standards, and they must contain a declaration of authorship.
- The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C. (2017), Lern- und Arbeitsstrategien (12th ed., Cornelsen Schweiz).
- For any work written at the HSG, the indication of the page numbers both according to the MLA and the APA standard is never optional.
- Where there are no page numbers in sources, precise references must be provided in a different way: titles of chapters or



sections, section numbers, acts, scenes, verses, etc.

- For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B. (2018, Juristisches Arbeiten: Eine Anleitung für Studierende (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).

#### Supplementary aids

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#### Examination languages

Question language: English

Answer language: English

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## 2. Examination sub part (2/3)

#### Examination time and form

Decentral - Group examination paper (all given the same grades) (15%)

#### Remark

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#### Examination-aid rule

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#### Supplementary aids

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#### Examination languages

Question language: English

Answer language: English

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## 3. Examination sub part (3/3)

#### Examination time and form

Decentral - Group examination paper with presentation (all given the same grades) (60%)

#### Remark

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#### Examination-aid rule

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the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C. (2017), *Lern- und Arbeitsstrategien* (12th ed., Cornelsen Schweiz).

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## Supplementary aids

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## Examination languages

Question language: English

Answer language: English

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## Examination content

Part 1 (individual examination paper) will focus on the analysis of event data and the detection of business relevant events and require students to perform exercises. Part 2 (group examination paper) will focus on the usage of business process management technologies and services for automating business processes and require students to implement a simple business process. The team project (Part3), in turn, will focus on a more complex task which requires students to work in a team and to practically apply the concept and principles covered in the lectures in an integrated manner. The project will require students to monitor data coming from IoT devices and online services and process them to detect business relevant events. Moreover, students will be required to use business process management technology to respond to the detected business events and integrate them into a business process.

## Examination relevant literature

All core concepts relevant for the exam will be introduced in the lecture and applied in weekly exercises. The relevant core concepts and exercises will be uploaded to Canvas (before each lecture).

- Lecture slides
- Exercises
- Literature
- Referenced Literature
- Discussions during classes



### Please note

Please note that this fact sheet alone is binding and has priority over any other information such as StudyNet (Canvas), personal databases or faculty members' websites and information provided in their lectures, etc.

Any possible references and links within the fact sheet to information provided by third parties are merely supplementary and informative in nature and are outside the University of St.Gallen's scope of responsibility and guarantee.

Documents and materials that have been submitted no later than the end of term time (CW21) are relevant to central examinations.

Binding nature of the fact sheet:

- Information about courses and examination time (central/decentral) and examination type starting from the beginning of the bidding on 23 January 2020
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for decentral examinations after the 4th semester week on 16 March 2020
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for central examinations as from the starting date for examination registration on 6 April 2020

Please consult the fact sheet again after these deadlines have expired.